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JOSEPH WARDER
Physician, Ætatis 58.

C. Armitage

THE TRUE

AMAZONS:

OR,

The MONARCHY of

BEES.

Being a New Discovery and Improvement of those Wonderful *Creatures.*

Wherein is Experimentally Demonstrated,

I. *That they are all govern'd by a QUEEN.*
II *The Amazing Beauty and Dignity of her Person.*
III. *Her extraordinary Authority and Power.*
IV. *Their Exceeding Loyalty and unparallel'd Love to their QUEEN.*
V. *Their Sex, Male and Female.*
VI. *The Manner of their Breeding.*
VII. *Their Wars.*
VIII. *Their Enemies, with Directions plain and easy how to manage them, both in Straw-Hives and Transparent Boxes; so that with laying out but Four or Five Pounds, in Three or Four Years, if the Summers are kind, you may get Thirty or Forty Pounds* per Annum.

Also how to make the *English* WINE or MEAD, equal if not superior to the best of other WINES.

By JOSEPH WARDER of *Croydon*, PHYSICIAN.

The Third Edition with Additions.

Sic vos non vobis mellificatis Apes. Virg.

LONDON, Printed for JOHN PEMBERTON, at the *Buck* and *Sun* over-against St. *Dunstan's* Church in *Fleet-street*, and WILLIAM TAYLOR at the *Ship* in *Pater-noster-row.* 1716.

TO THE

QUEEN's

Moſt Excellent Majeſty.

MADAM,

THERE is nothing can excuſe the Preſumption I am guilty of, in thus approaching your Sacred Hands with ſo mean a Trifle, but the Subject here treated of, which is of Princes and Potentates, Kingdoms and Territories, Pre-

rogative and Property, Dominion and Loyalty, War and Peace.

I have with a Studious Delight, for near Twenty Years paſt, convers'd with theſe Innocent Creatures the Bees, *and have not failed (to take all Opportunities) to inform my ſelf, by the moſt curious Obſervations of their Nature and Oeconomy, wherein I find ſo many things that reſemble Your Majeſty's happy State and Government, that all the while I was writing of this Book, I could not forbear wiſhing I might Dedicate it to Your Majeſty; but thoſe Ambi-*

tious

tious Thoughts of mine were ſoon curb'd, by reflecting on the Meanneſs of the Oblation, till I recover'd my ſelf by the Conſideration of Your extenſive Goodneſs, who like the Sun diſplay the Beams of Your Favour on the Unworthy, as well as the Meritorious.

Indeed, no Monarch in the World is ſo abſolute as the Queen of the Bees; *(which pleads very much with me, that Monarchy is founded in Nature, and approv'd by the great Ruler of Princes.) But oh, what Harmony, what lovely Order is there in the Government of the* Bees!

The Queen-Bee *Governs with Clemency and Sweetneſs, ſo doth Your Majeſty; ſhe is Obey'd and Defended, out of Choice and Inclination by her Subjects, ſo is Your Majeſty. And here I cannot but wiſh that all Your Majeſty's Subjects were as unanimouſly Loyal as the Subjects of the* Queen-Bee, *in whoſe Nature there is ſo ſtrongly (as well as ſtrangely) plac'd a Principle of Obedience, whereas I doubt here Your Majeſty is not altogether ſo happy; for though all the Thouſands of Your* Britannick Iſraël *eſteem Your Majeſty's Perſon as Sacred; and ſcarce ſuch a Villain is among*

us

us, who would not lose his Life in the Defence of Your Majesty; yet I fear 'tis not hard to find some few unquiet Spirits, tho' 'tis not in their Power, to trouble the Serenity of Your Government, or disturb the Quiet of Your English *Heart.*

I here present Your Majesty with a true State of these Amazons, *or rather, a State of the true* Amazons; *and tho' there be Male as well as Female amongst them, 'tis not for nothing, nor by chance, that He who is Wisdom itself, should thus place the Government of their famous Monarchy in a Queen,*

who

who doth, tho' with aweful Distance from Your Majesty, sway a peaceful Sceptre, if not affronted nor assaulted; otherwise like that of Your Majesty's; one Terrible to her Enemies, who will maintain War with any State that dares Assault her, or invade even the Borders of her Territories, attempting any Plunder or Devastation on the Goods of her Subjects. These noble Creatures have (of late especially) been much neglected, and their Industry not improved in Your Majesty's Dominions; the chief Cause of which, has been Ignorance of the right way of managing them, and of the great

Pro-

Profit arising from their Labours, which Defect I have here supplied, by Directions at large, gathered from undeniable Experience, which will exceedingly help the Poor, as well as delight the Rich; not only with various Observations and Speculations, by means of their Transparent Hives here described, but also with a Liquor no ways inferior to the best of Wines, coming either from France *or* Spain; *which if they will but try, they will soon sit down contented under their own Vine, and with me refresh themselves, with Drinking Your Majesty's Health in a Glass of such as our* Bees

can

can procure us; and no more Long for the Expensive Wine of our Enemies.

Thus, Dread Sovereign, I have presumed to lay my Queen-Bee, *with all her Subjects, at Your Royal Feet for Protection, wishing that all Your Majesty's Subjects may be as Affectionate and Dutiful to Your Majesty as my* Bees *are to their Queen; then would the pressing Weight of Government grow easy on Your Royal Shoulders; and to the Joy and Happiness of all Your Subjects, You would be long, very long able to bear the Weight of Your Imperial Crown.*

And

And when, to the unexpreſſible Grief of Your Loving Subjects, You lay down this Your Earthly Diadem, that it may be to Your Majeſty a moſt happy Exchange for a Crown of Eternal Glory, is, and ſhall be the Prayer of

Dread Sovereign,

Your Moſt Loyal

And Moſt Dutiful

Subject and Servant,

JOSEPH WARDER.

THE

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ERRATA.

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THE TRUE AMAZONS: OR, Monarchy of BEES.

CHAP. I.

The Description and Anatomy of the BEE.

THE Bee of all Insects is certainly the most noble; for tho' there are innumerable variety of Insects that afford us matter for Speculation and Admiration, (not without their use) and do loudly proclaim their thoughtful Maker not in haste in their Formation; yet none can compare with the Bee, if we add to their curious Form, their admirable Work, and the great Benefit, that by their most indefatigable Labour doth arise to Man, for whom they were created. And since the knowing their

Nature, doth very much conduce to the improving their Labours; and finding that moſt of the Authors now extant, that have given the World an Account of their Notions and Speculations about the Bees, have taken many things upon Truſt, and handed them down to Poſterity for Certainties, either having no Experience at all, or elſe, through the Multiplicity of Avocations, have not been very curious in their Obſervations; or have been too ſhort, (as ſome) or too voluminous (as others) for the Vulgar to apprehend, they being ſtill at a great loſs how to manage theſe their induſtrious Servants to the beſt Advantage, for their Profit as well as Pleaſure; the ſupplying of which Defect, is the Deſign of this Book. I have try'd for many Years, the manifold Ways of keeping of Bees; and am at laſt prevail'd upon, by the Importunities of many, to give the World an Account of what Knowledge I have, by infaliable Experience gain'd, that I may not only direct my Countrymen how to manage them, but free them from many Miſtakes about them.

The Bee is a ſmall Creature, about three quarters of an Inch long, having four Wings moſt curiouſly ſhaped, with ſtrong Fibres round and croſs them, to ſtrengthen the fine Cypreſs of which they are fram'd, ſix Legs, a large Head, but very ſmall Neck, alſo very ſlender in the Waſte or middle Part. Nature hath provided her with two ſorts of Inſtruments for War and Defence, *viz.* her Fangs, or Mouth, wherein are her Teeth, but meet in a different Way from other Creatures, they meeting ſide-

ways

ways like a Pair of Pincers, and not one over the other; with which they defend themſelves, and aſſault others. But their chief Inſtrument for War, is in their Tail, and call'd their Sting, with their Fangs they lay hold of Robbers which come to ſteal their Honey, whil'ſt another comes and carries Death to her Bowels with her Spear or Sting, which always carries Death where-ever it comes amongſt their own kind, and generally Death to themſelves, when their Sting pierceth any thing human; for tho' ſometimes a Bee may give you a light touch with her Spear, and away, yet generally ſpeaking, they leave their Sting behind them, with their Bowels joyning to it, and conſequently their Life; for tho' they die not preſently, yet they live not an Hour, and would live as long, nay I believe longer, cut aſunder in the Middle, than they will without their Stings. Their Sting is very taper and ſharp, very apt, when exerted by the Bee, to pierce the Skin or any other harder Body; I have had my Hand ſtung through a thick Buck-skin Glove: But notwithſtanding all this its Strength, it is a hollow Tube, and contains its Poyſon about the Middle of it, plainly diſcover'd by the help of Glaſſes. Their Eyes are very large, cover'd over with a thick horny Membrane, which is the occaſion of their being ſo dim-ſighted: But to ſupply this Defect, Nature hath given her two Horns, which grow above her Eyes, about the tenth of an Inch long, in each of which there are two Joints, one in the Middle and another near the end, by which they can put them forth when they will to the full length,

and draw them in close to their Head when they please. These are the Instruments of Feeling; they commonly carry them thrust out before them, by which they feel tenderly any thing that is tangible, which doth hugely help their dimness of Sight. Her Tongue is much longer than her Mouth will contain, and so is doubled underneath, and reacheth a good way down her Breast. Her Body is all over hairy as a Fox, and her Head too, nay a great Part of her very Eyes are cover'd with small Hairs, but so small that they cannot be discern'd by the naked Eye, without the help of the Microscope, which will also discover the Brain in their Head. Within the Breast, she hath a reddish fibrous Flesh, with Heart and Lungs, proper Instruments for breathing: In the hinder Parts there is a Gut, with its *Anus* and *Sphincter*, as also their Bottle or Bag, in which they carry their Honey, which (by Muscles fitly adapted for that purpose) she emptyeth into the Honey-comb: In this Bag she often fetcheth Water, to mix up her Sandarach or Bee-bread, for the feeding her Young, which they are very diligent and careful about, being very fond Mothers of their Children, till they can shift for themselves; for after great Pains taken, and curious Observations made, with the use of the best Glasses, I must come to this certain Conclusion, that all the working Bees are Females.

CHAP.

CHAP. II.

The Description and Anatomy of the Male Bee, vulgarly known by that ignominious Name of a Drone.

THere are none that have kept Bees at all, but they know the Drones from the working Bees; but they are for the most part absolutely ignorant what these Drones are, or what Nature hath design'd them for. I perceive the Opinion that most prevails amongst the Country Bee Mistresses, is, that they are Bees that have lost their Sting, and so growing to that prodigious Bigness, (out of all Proportion to the other Bees) they become Drones. Now this their Mistake is occasion'd by their seeing they do not work, or cannot sting, and that the smaller Bees bear rule over them, and so they give them that contemptible proverbial Name of a Drone.

Now I conceive I ought to speak something in the behalf of this poor abused and despised Creature, especially since the Management of Bees doth not a little depend upon the right knowing of these Drones.

There have been many Errors about them, and some as old as *Virgil*, (*Ignavum fucos pecus a præsepibus arcent*) from whom and many others, (not being willing to go through thick and thin for company) I must crave leave to differ concerning this noble Creature, which I shall no longer call a Drone, but the Male Bee.

Since he is very induſtrious in the Work which Nature hath deſign'd him for, which is not only Procreation, but his great Uſefulneſs in ſitting upon, and hatching the Eggs, and by his great Heat doth keep warm the Brood when hatch'd, thereby giving the working Bees the more Liberty to follow their Labours abroad, whilſt they ſupply their Place at home, by taking care of the Young; ſo that the Male Bee is not only of great uſe, but of abſolute neceſſity, not only to the being, but the well-being of the Colony of Bees, which we ſhall deſcribe as follows.

The ſuppoſed Drone Bee then is the Male Bee, as will at large hereafter appear. About half as big again as the Female working Bee, ſomewhat longer, and not quite ſo dark colour'd about the Head and Shoulders, eſpecially his Head and Eyes much larger than the Honey-Bee, his Voice much more loud and dreadful, often cauſing Fear where no Fear is, eſpecially to the fair and timerous Sex; for he having not any Sting, is not in the leaſt capable of hurting them nor any other Creature, but is abſolutely under the Dominion of the Females. But to go on, he hath his Velvet Cape about his Neck, and is very hairy all over his Back; his Tongue is much ſhorter than that of the Females, neither can he work if he would, his Tongue not being long enough to reach the Honey out of the ſocketed Flowers.

As to his Sex, there are many Arguments for what I aſſert, as that all Creatures breed Male and Female; and he, as is often ſeen in other Creatures, being the biggeſt, 'tis moſt probable

probable that he is of the Male kind. I confeſs, that being ſubject to the other Bees is an Argument againſt me, but as there is no general Rule without an Exception, ſo here I muſt beg Mr. *Lilly*'s leave to aſſert contrary to Grammar, that the Feminine is more worthy than the Maſculine amongſt the Bees: And here I ſhall endeavour to draw my Reader out of thoſe unintelligible Perplexities, that others beſides Mr. *Rouſden* have impos'd on the World. Mr. *Rouſden*, I think, was the laſt Author that hath writ about theſe deſerving Creatures, and indeed tells us in his Diſcovery of Bees, that the vulgar Opinion, that the Drone-Bee was a working Bee that had loſt her Sting, and ſo grew bigger, was a Miſtake; to prove which, he tells us a Story much leſs probable, *viz.* that he is bred of animable Matter gather'd by the working Bees, and caſt into the Drone Comb, into which animable Matter, the King Bee did caſt his Sperm, and ſo Drones are produc'd, which is ridiculouſly falſe; for firſt, there is no animable Matter gather'd by the Bees, nor if there were, is there any King Bee to impregnate it by his ſeminal Virtue; but of this more when we come to treat of their breeding and Government.

I confeſs it was a bold ſtroke of Mr. *Rouſden*, to lay down ſuch an Hypotheſis, and impoſe it on the World as Matter of Fact, without giving us one rational Argument to prove it, or any one Experiment by which he was let into the Secret. But to put the Matter into a clear light, let any Gentleman (whoſe Curioſity leads him to know the Truth) but gently cut

up with a Launcet, or very ſharp Penknife, the Belly or hinder part of the Drone-bee, there he ſhall find in the ſame manner as in Birds, a large Pair of Teſticles, as big as great Pins Heads, Milk white, joyn'd together upward by the Spermatick Veſſel, and hanging divided downwards in the very Shape of the Stones of a Lamb: The *Penis* or Inſtrument of Generation, indeed is much more ſtrange, and will ſeem incredible to the Reader, till he hath try'd the Experiment; it grows near the end of the Tail, and ſometimes only gently preſſing one of theſe large Bees whilſt alive, will make it ſtart out; the ſtrangeneſs of its Form and Magnitude at firſt did not a little ſurprize me. It is of a reddiſh white, and in ſhape much reſembling the Head of a Bullock with its Horns. This ſtrange difference from the common Bee, doth make ſome of Opinion, that they are of a different Species of Bees, and (as *Rouſden*) bred in a different Manner, when indeed it is plain they are all of one Species, only differing in Sex, Male and Female, and ſomewhat in Magnitude and Colour, occaſion'd by their difference in Sex, as it is in moſt other Creatures, as in Man, the Top of all the ſublunary Creation; our Bodies more ſtrong and robuſt, our Voice, like that of the Male Bee, more deep and dreadful, whilſt the tender Sex, like that of the Honey-bee, is ſmaller, more ſhril and delightful; but to ſay all that will be uſeful of the Male-bee, or the ſuppoſed Drone, as they are the Male-bee, ſo they are abſolutely neceſſary to the breeding of Bees; and as they are helpful in the managing of their Young,

Young, ſo are they very neceſſary, for by their great Heat they ſit, and hatch the Brood, keeping the Eggs warm, whilſt the Honey-bees, or Females, follow their delightful Vocation of gathering and bringing home of Honey; during which time, the Drone-bees are not ſuffer'd to ſtir from the Brood, but about one or two a Clock, when the chief part of the Day's work is done by the Bees, moſt of them repairing home, take care of their own Brood, and ſo give leave to theſe their obedient Maſculine Servants to recreate themſelves abroad, their Heat now being no longer neceſſary within Doors; then you ſhall ſee the Male-bees very thick about the Mouth of the Hive, flying to and fro five or ſix large Circuits, to recreate and empty themſelves, then returning again to their beloved Nectar, where they are for a time kindly receiv'd by their imperious Dames, eſpecially in the Months of *May* and *June*, that being the chief time of their breeding; and here, by the Way, let me caution thoſe who are ſo happy as to keep theſe induſtrious Servants, againſt an unhappy Miſtake which they are apt to fall into, of killing the Male-bee or Drone as ſoon as they ſee them, by which they hinder their Breed, (the Male-bees being but few in Number at firſt) to the great Damage, if not utter Deſtruction of the Hive of Bees; for they had better kill ſix working Bees, than one of theſe great Bees in *May*, or the beginning of *June*, unleſs you can ſuppoſe, that a Shepherd having Ten Rams amongſt a Thouſand Ewes, ſhould be ſo void of Senſe, as to imagine that the beſt way to increaſe his Flock,

Flock, would be to kill half a dozen of his Rams, that they may not eat up the Paſture from the Ewes; let me therefore perſwade you to ſpare him a little longer, for he is a very ſhort liv'd Creature, and he will not fail to make you amends, if he be not ſlain, to die of himſelf, but of this more in the next Chapter.

CHAP. III.

The Time and Manner of their breeding, length of Life, cauſe of Death, and manner of Burial.

AS to the time of their breeding the, forward Stocks begin in *February*, and the latter, or thoſe that are not ſo luſty, leave not off till the latter end of *July*: So that there are ſix Months in which Bees are bred; and the ſooner they begin, the ſooner they make an end, tho' there are more Bees bred in two Months, than in all the other four, and theſe two Months, for the moſt part, are *May* and *June*, tho' this is ſomewhat uncertain; for in a very forward Spring the Flowers blow early, by which means the Bees, by early gathering grow luſty betimes, and throwing off their Winter Torpidity, fall to breeding the ſooner; in this caſe the two chief breeding Months, may be *April* and *May*; ſo in a moderate warm ſhowery Spring, tho' not ſo warm as was laſt ſpoken of, the chief of their breeding will be from a Fortnight in *April*, to a Fortnight in *June*; ſo contrarywiſe in a very

very backward Spring, the Flowers blow late, and so the Bees are late before they are invigorated for breeding, and then *June* and *July* will be the two chief Months for their breeding; and if it be an extreme cold Spring, the more backward will the Bees be in their breeding. But it happens best for the Bees, and most profitable for the Bee Master, when the Spring is neither very early nor very backward, having formerly, to my cost, had Experience of both these Extremes.

My Reasons, grounded on Experience, are these. In a very early Spring, when *February* and *March* have been very warm, the Bees having (as above) receiv'd Vigour from the early Flowers, begin to breed early; so that in *April* the Hive is full of Bees and ready to swarm, nay sometimes have swarmed tho' very rarely; and all this is no Damage, but very happy, if the Spring continue to be very warm, that they keep on their Work as well as their breeding, then all will be safe: But if the Stock be not very rich in Honey, and there should come but a Week or two of cold Weather to hinder their Working, they will all be in danger of being lost; for the Family still increasing, more and more Brood still coming to hand, not only to be capable, but to have an absolute necessity of Feeding, and whilst they expect Food from their pitiful Mothers, who have none to give them, nor any for themselves, and the Weather still continuing cold or wet, or (as it is sometimes) both, that these provident Mothers cannot go abroad to get Bread for their Children, both Young and Old must unavoidably perish together; so that in this case the Stocks that are most

forward

forward in breeding, tho' always the beſt, are in more danger than thoſe that did not begin to breed ſo early: But this Misfortune may be happily prevented by the wary Bee Maſter, (the manner how, you ſhall find in the Chapter of feeding the Bees.) The other Extreme, is a very cold and backward Spring, when the Flowers blow not, by reaſon of the theColdneſs of the Weather, many of them being kept in their Socket a long time, that ſhould have blown, had any warm Weather come, till at length the Seaſon of the Year being far advanc'd, the Weather changes of a ſudden, becomes warm, or perhaps very hot, ſo that abundance of Flowers blow together, juſt in the height of their breeding, at which time Honey-gathering coming all together, ſo that their working muſt hinder their breeding, or their breeding muſt hinder their working; and if a very dry Summer ſhould follow a cold and backward Spring, the Stalls will be all poor; about which great care muſt be taken in feeding, or elſe the next Spring you will find your ſelf a broken Bee-marchant, and may try *Virgil*'s way of making new ones, [*Virg. Georg.* 4.] if you think fit. But to go on, a Bee is firſt an Egg, and not as Mr. *Rouſden* ignorantly ſuppoſes, made of animable Matter, (which he affirms of the Female Bee, as well as the Drone) to be gather'd by the Bees from the Flowers and caſt into the Combs, as their proper *Matrix*; then he makes a King Bee, for there is no ſuch thing (*in rerum natura*) and preſently makes a Town Bull of his King; for he tells us, that the King Bee goes from Cell to Cell, and caſts his Seed into every Cell, of

of this prepar'd animable Matter and thus Bees, as well as Drones, are produc'd, as was before hinted: And indeed I might with as much Probability affirm, that some Fly or other had cast his Seed into his Brain, which being being before adapted to receive the prolifick Virtue of the Fly, hath brought forth these improvable Maggots into the World. All that I can say for him, is, that I believe he might be drawn into these Mistakes, by relying too much upon the Silver-tongu'd *Virgil*, who says they fetch their Young from the Flowers; and not observing the Sex of their Commander, gives her the Title of *Rex Apium*: Which, 'tis very probable, drew Mr. *Rousden* into these two Mistakes, being resolv'd, not to contradict so celebrated a Poet; but he ought to have consider'd, (that tho' *Virgil* were a great Poet, and the Bee a noble Subject for such a Pen) that in treating of them, he writes more like a Poet, than an experienc'd Bee-master. Indeed there are many ancient, as well as this modern Author, that have strangely deluded the World, with their unexperienc'd Whimseys, about the Generation of Bees; some, that they are bred of Honey, but this cannot be, except by Putrifaction, and that cannot be, for Honey putrifieth not, but by its conservative Virtue, doth prevent other Bodies from Putrifaction. But I shall not trouble the Reader with any more of these antiquated Impertinences, but proceed to matter of Fact: These Eggs, which are produc'd by the Bees, and in their time do become Bees, are exceeding white, something bigger than the common Flyblow, but not so long nor

so

ſo big as the Eggs of the Ant; they are caſt into the empty Cells, not careleſly into any Cell, but only the middle Cells, which are always appointed for the breeding Cells, whilſt thoſe all round the Hive are reſerv'd for the Honey; Nature, or rather the GOD of Nature, having taught theſe uſeful Creatures, that if they ſhould caſt their Eggs near the outſides of the Hive, or Box, there would not Heat ſufficient come to them to hatch, and bring them to Perfection; which Inconveniency they carefully avoid, by laying their Eggs all cloſe one to another, near the Center of the Hive or Box, but always exactly avoiding the Confuſion and Abortion that would be produced, if they ſhould lay above one Egg in a Cell: No Eggs are generally laid within three Inches of the top, bottom, or ſides of the Hive or Box, ſo that the Bees being all round the Cells where their Eggs are laid, as well as above and below, ſo that by their natural Heat, that doth always keep them warm, they are brought on *gradatim*, or ſtep by ſtep, till they are hatched, and come forth a perfect Bee: For this great and marvellous Work, as it is not done all at once, ſo are the gradual Steps that Nature takes, in bringing theſe Eggs to be perfect Bees, both ſurprizing and amazing; for the Egg is with all the Care and Exactneſs laid, with one End touching one of the ſix Angles, or Corners of the Cell, that as it grows in length, as well as bigneſs, it may be the longer before it comes to touch the oppoſite Angle with its other End, which otherwiſe would incommode the Embrion; for if it ſhould have been laid againſt

one

one of its flat Sides, or Squares, there would not have been so much room for its growth from Square to Square, as from Corner to Corner, so that always you find them, when first laid, with one End of the Egg touching one of the Corners, and the other End pointing against its opposite Corner: But this Posture continues not long, and serves only for that time that this Embrion is without Life or Motion; for at that time that it comes to touch its opposite Angle, it receives its first Life, (bear with the Expression, for I must anon give you account of a second) and then it comes to be a little sort of a Maggot, and turns it self, rounding at the Bottom of the Cell, much resembling a Half-moon: In this Position it continues till one end comes to touch the other in the Form of a Ring, till, by reason of its continual Growth, it can lie no longer in that Posture; then, with considerable Life and Vigor, it turns it self, thrusting one End towards the Mouth of the Cell, and from that time lies length-ways; Nature directing that this Creature shall thrust it self with that End forward toward the Mouth of the Cell, which is to be the Head; thus it remains, growing both in length and magnitude very fast, and is now a Creature of much Life Vigour and Motion, much like those Maggots which we get of the Butchers, or Chandlers, called by us Gentles, which we use in Fishing, but much larger and whiter, but no manner of sign of Wings, Neck, or Legs: And here is a Wonder! this Creature is now as big as a Bee, and all this while fed by the Bees, but is no more like a Bee than a Turnep. Now comes

comes on the time, when it must for a while cease to live, at least in all appearance, that it may again live a more glorious Creature: When the Creature is come to this bigness, the Bees close up the top of every Cell with Wax, their fond Parents (at least as to sight) taking their leave of these their helpless Children, they being every one fast sealed up in its proper *Matrix*, where they can have no Food, neither can the least Air come near them; and this work of closing up these Cells, is, according to the best Conjecture I can make, (for I can do no more) about the fourteenth Day; and thus it remains closed up about seven Days more, to all appearance without Life or Motion: But Nature, who never ceases her Diligence in bringing her Works to Perfection, is not all this while idle, but very busy in forming this ill-shapen Maggot, before spoken of, into a Bee; the first appearance of this Work is in her Neck, (which you may plainly see, in few Days after they are closed up, if you will have the Curiosity to break them up) then the Middle, or Waste, begins to be smaller, before there be any sign of Legs, or Wings; then the Eyes; and last of all the four Wings, and six Legs, before spoken of, in the Chapter of the *Anatomy of the Bee*: At last, about the twenty first Day from its being an Egg it is hatched, by lifting up, with its own horny Head, the aforesaid Sealings or waxen Covers, and is now a perfect Bee, for all its Parts and Shapes too, and differs only from its Mother in Colour, being always whiter than the old ones for a time, and are always fed for some Days at the Mouth, as the Sparrow feeds her Young,

and

and then begin to fly abroad, but very often venture too soon to leave their tender Mothers, to atchieve the great Business of Honey-gathering; so being scarce able to fly, they often fall down at the Mouth of the Hive on the Ground, and can never rise to recover home again, but must unavoidably perish.

Like forward Youth grasping the weighty Shield,
And pond'rous Spear, too late his Error knows;
That his unpractis'd Nerves at last must yield
To his more strong and more victorious Foes.

But the Numbers are not great of these forward Viragos, neither are all the young Bees that you find fallen and crawling in your Bee-garden of this sort, but for the most part they are such as are cast out, by reason of some Defect in Nature, which I have very often observed, when I have taken them up in order to save their Lives; but upon curious Examination, have found they have wanted a Leg or Legs, or a Wing or two. I have known some thrown out that have had all their Parts exactly perfect, but only one of the four Wings have not been quite so long as it ought to have been; and by that means uncapable of flying abroad to gather Honey, and so are thrown out as useless, lest by keeping them in, they should become a Charge to the Family; for the Law here amongst these industrious Dames, is, no Eating without Working; tho' this their general Rule is not without Exception, for to the Male-Bee they willingly afford Honey, (tho' he Work not) as long as they

find his Company beneficial to the Publick; but all the Bee's Eggs come not to be Bees, no more than all Hen Eggs come to be Chickens, tho' most of them, if not all, pass the first part of their Metamorphosis, from an Egg to a Worm, and then through some Miscarriage or other within the Hive, some of them die in their Cells; but this seldom happens but to such as are bred early in the Spring, who are in more danger of proving Abortives, than those that are bred in the warmer Months; for in the Spring, the Bees being but few in Number, lay many Eggs, in order to encrease their Family; so that the Weather being cold, these Eggs require no less than the Warmth of the whole Number, to vivify and hatch them. Now this being a Work of Time, it often happens that of a sudden the Weather alters to be very moderate, and the warm Sun giving notice to these industrious Creatures, that there is Honey abroad to be gathered, they advance to the City Gates, (the Mouth of the Hive) and finding it very warm, they send forth a Squadron to fetch in Honey, who returning richly laden, do animate their fellow Citizens to sally out and try their Fortune also, then sending out more numerous Detachments than before, to fetch in Honey, their Beloved Nectar, they thereby leave the young Brood, especially those of them that are in the lowermost Combs, too much expos'd to the piercing Air, and so it is chill'd in the Combs, and becomes Abortive; for tho' the Bees are not only so careful, but extremely zealous for the Preservation of their Young, that

that they will venture their own Lives in their Defence; yet when a warm Day doth present Honey gathering before them in the Spring, they are apt to draw out too great Numbers for that Service, and so hazard a part of their Brood, rather than venture the losing of an Opportunity, which perhaps the next Day would not produce. So diligent are they in their gathering of Honey at this time of the Year, that if the next Day prove Warm and Fair, they go forth in the same manner to their Work as before; nay, let the Warm and Fair Weather continue never so long, they will still keep on their Labours, and will not lose so much Time as to perform the Funeral Rites of their Dead Children; not that they are negligent or careless, or do defer this piece of Cleanliness and Decency for any other Reason, but that only of following their Labours close, to bring in Food to maintain their Living Children, rather than spend their precious Time wherein Honey may be got, in that now unnecessary Work of Burying their Dead; for should they lose these favourable Opportunities of gathering Honey in the Spring, and Cold Weather should come on, and continue long, as sometimes to my Cost I have known it, especially if the Stock be not very Rich, many Young Bees coming to hand that must be fed, and the bad Weather continuing to hinder their provident Mothers from Working, both Young and Old must die together; which fatal Disaster these laborious Creatures prevent by their above-mentioned Diligence, in laying hold of every fair Oppor-

tunity for bringing in Proviſion; but whenever there comes a warm rainy Day, that they are totally hindred from going out to gather Food, theſe curious Contrivers ſet apart that Time for the Solemnizing the Funerals of the Dead; and let any who are curious but obſerve it, and they ſhall hear them very buſy within the Hive, and ſee them dragging out their white Dead young Bees, thoſe that have them in Boxes with Glaſs Windows, may with more Satisfaction gratify their Curioſity; Two or Three Bees carrying forth one dead one, and when they have got the dead Body clear of all Incumbrances, without the Mouth of the Hive, then ſometimes a ſingle Bee will take him up with his fore Legs, and fly quite away with him out of ſight; and ſometimes if the Weight be too great for one Bee to carry off, then I have ſeen two of them lay hold of the Dead Corps, one at the Head, and the other at the Tail, and ſo fly away with her; and when they are got about twenty or thirty Yards off the Hive, then they drop their Burthen. But I have often ſeen that a ſingle Bee endeavouring to perform this Work alone, has dropt her dead Burthen near the Mouth of the Hive on the Ground, and go again and try with all her Might to recover the dead Corps up again, in order to bury the Body farther from the Hive, and ſometimes with Succeſs, have again recover'd it up into the Air, and carried it quite away out of ſight; they keep on this Work all the while that it continues warm and wet, or at leaſt till they have thoroughly cleans'd the whole Hive, not only

only from dead Bees, but all other things that are offensive to them, that is in their power to remove. But, if they are never so earnestly engaged in this Work, if the Sun shine out, they leave what's undone till the next Opportunity, and fall to their more necessary and delightful Work of gathering Honey; when, I say, if the warm Rain continue, I mean such warm Weather as would permit the Bees to go abroad to gather Honey, did not Rain prevent them; and so being forc'd to stay at home, not out of choice, but necessity; they are not idle, but like good House-wives mind their Domestick Affairs, which can as well be performed at that time as any other: For if it be very Cold, tho' it be in the Spring, and there are Flowers blown, and Honey in them, and no Rain to hinder them, they stir not from the Hive, or perform any cleansing Work within, well knowing that they cannot bear such kind of Weather abroad, nor dividing themselves within about the necessary Work as above, but are forc'd to make the best Defence they can against it at Home for their own Security, for they cling all very close together betwixt the Combs in the Center of the Hive, by which means their natural Heat is not only imparted to one another, for their own common Preservation, but doth also keep the Brood of young Bees very warm, and preserve them in their progressive Growth, which otherwise would be in great danger of being Chill'd, not daring to break the Cluster; for if by any Force, or Disturbance, they are forced one from another in cold Weather,

they are in a Moment so chill'd, that they can neither fly nor go, and in a short time die.

The burying of the Dead here some contrive,
Some nurse the future Nation of the Hive.
Some feed their young, whilst others cleanse the Cell,
And some prepare for Winter Hydromel.

The Age of Bees, and Cause of Death.

THE Age of a Bee is at longest but a Year, and the Wonder is not that they live so short a time, (but considering how many Enemies they have, and how many Casualties they are subject to) that they live so long. I am not alone in my Opinion, that not only Bees, but all other Creatures having a Cypress Wing, are at most but Annuals. Sure we are, that most sorts of Insects fall much short of that time, many not reaching half that length, some not a Month, nay, some, according to the Opinion of that Learned and Philosophical Divine Mr. *R.* to the Length but of one Day. I confess, most of the World are of a quite different Opinion concerning Bees, and doubt not but they live many Years; and to this unhappy Mistake, some of the Antient Philosophers have not a little contributed, by venturing to deliver their bare Opinion to the World, without any Experience; which had they try'd, they would have been convinced of their Mistakes, and not have thus impos'd them upon us: And since their Improvement doth not a little depend upon the clearing of this

this Doubt about their Age, I shall set the Matter in as clear a Light, as the Nature of the Thing will bear.

Obj. And here the Reader will suppose he hath just Reason to raise an Objection, and say, what is this to the Purpose, how long they live, or how soon they die. And how can this be so material a Point to the improving of Bees?

Ans. Yes, very much; for where-ever this vulgar Error prevails, (as it now doth in most Parts of *England*;) or whoever believes, that Bees lives many Years, that Place shall never be well stock'd with Bees, nor shall those Persons ever make any great Improvement of them, or reap any great Profit by them, because this Notion of itself doth hinder the Planting or Raising of great Bee-gardens, or encreasing their Bees to any considerable number of Colonies, or Stocks of Bees, in their Gardens or elsewhere; for, says the good Woman of the House, to whose Protection for the most part, the Bees are committed, this Stock is very good, and heavy, and would stand very well till another Year: But pray consider, it is two Years old already, and if I should let it stand another Year, the Bees will be so old, that they will not be able to labour much next Summer, and now we are sure of a good lump of Honey, that will make us a Firkin of good Mead, fit to be tap'd at *Christmas*; the Daughters approving their Mothers Politicks, thus ends the Council of War betwixt the old Woman and her two Daughters against these her industrious and laborious Servants;

and no sooner is this harsh and ungrateful Sentence pronounc'd against these Innocents, but they immediately proceed to Execution; one runs to find a Spade, to dig a Hole in the Ground; another is preparing two or three split Sticks; a third, the fatal Brimstone Matches to put in them: Thus all things being prepar'd for an Assault of their rich, but defenceless Castle, they are taken by Storm in the Night, their City plunder'd, and their Inhabitants all slain by Fire.

Like a rich City, strong by Nature made,
And e'ry House with richest Treasure fill'd;
No Hostile Force did e'er their Walls invade,
Till now betray'd, they now their Treasure yield,
With Life and all; no Citizen can fly;
The Brimstone Mine is sprung, headlong they fall,
Both Queen and Subjects, all in Dust do lie,
One common Grave doth now receive them all.
The Victors seize on their delicious Prey:
Here twice ten thousand Houses levell'd are.
Their sacrilegious Hands make no delay,
But streight the Regal Palace seize and tear;
The Queen is slain, her Subjects all are dead;
No Homage to her awful Palace paid.
With the sweet Prize the Conquerors are fled;
All being slain, of none they are afraid.

Thus the poor old Woman's Bees are destroy'd by her Mistake, thinking they would grow old by the next Summer, and not be able to perform their Labour: Whereas those Bees that she then destroy'd, were as young as the Bees that were in the Hive the Year before

before, the old Bees being all dead, before she came to take that mercileſs Courſe with them; for the Bees ſhe then kill'd, were all young Bees; and if the old Woman would have had Patience, and let them live, ſhe would have been very well rewarded for her Virtue; for the ſame Hive ſhe hath now deſtroy'd, would have done her as much Service every Year, as in the Year paſt, by encreaſing the Bee-garden with greater Numbers of Stocks, as well as greater Quantities of Honey.

But well knowing that my bare Affirmation will no more paſs upon my Reader, than any other Author's would upon me, I ſhall give him ſuch demonſtrative Arguments, as I doubt not but will be convincing, in order to remove this fatal and fundamental Error. 1. The Bees ſend forth, when they ſwarm, mix'd Numbers, not all old ones; for then muſt the Swarm be ſhort liv'd indeed, for they could not live to the next Winter, much leſs to the next Spring, for all the old ones dying in the latter Months of the Summer, there muſt be an end of the Swarm; for having none left but their Young, bred ſince they ſwarm'd, they muſt be a Prey to Robbers in Autumn, or the firſt Froſt in the Winter. 2. Neither are they all young Bees, for then the old Stock would not be in a better Caſe; for there being none left but old Bees, and thoſe they bred after the Swarm is gone forth, the old ones going off ſo faſt the latter end of the Summer, would leave the Hive too much unguarded againſt the Aſſaults of Robbers, or Cold; but going forth mix'd, both are preſerv'd, and great Conveniencies ariſe to

them

them all manner of Ways; As *First*, in the Stailer are left old sufficient Warriors to train up and well discipline the young *Amazons*, as soon as they become capable of being taught the Art of War, as well as Work, both being necessary to the being, and well-being of the Bees. *Secondly*, The Swarm hath also a sufficient Number of old ones amongst them, to teach and animate by their Example and Diligence, how to lay, not only the Foundation of their new most curious Buildings, but how to defend the same against all Opposers, and then by their Death leave the Young, Possessors of all, for generally the old Bees are dead before the Middle of *September*, but most of them before the End of *August*.

Obj. But how do you know the Old ones from the Young.

Anf. By these Signs following. The Old ones in *July*, and some of them in *June*, their Bodies begin to wither, their Wings, with continual Labour, grow ragged, and somewhat greyish, soon after which they die, some of them in the Hive, having their Funeral Rites perform'd by their dutiful Children, as hath been before observ'd. But many more die abroad in their beloved Calling, following their Work, till their Wings are at last worn out, that they will no longer bear the Weight of their Bodies, especially when laden with Honey; for many of them when they have been abroad to gather Honey; will recover home into the Bee-garden, and their pitching a while to rest themselves before they go into the Hive to unload, they can never rise more, which is the Reason, that

that about *July* and *Auguſt*, we have ſo many of them about the Garden; many of which I have taken up, in order to hold them in my Hand long enough to warm them ſufficiently to fly home, but they flying a Yard or two, fall down again; whereas when I have taken up any of the young Bees, and thus held them in my Hand to recover them from their Chillneſs they have receiv'd from ſtaying too long to reſt themſelves on the Ground, they, as ſoon as ever they are warm, fly home with all the Agility and Vigour imaginable.

But to put the matter beyond all Controverſy, let any body put it to a Tryal, as I have ſeveral times, by the following Experiment.

Put a Swarm of Bees of a Peck, in *May*, into a Hive of Glaſs that will hold half a Buſhel, and they will if it be good Weather fill it with Combs down to the Stool, in leſs than a Month, which will alſo be well ſtored with Honey, and ſome of the Combs employed from the firſt in breeding; ſo that with the Combs and Bees, the Hive will be exceeding full, that there is not room enough to contain them all in the Hive; nay ſometimes they will actually ſwarm, tho' it is beſt to prevent it if poſſible. I ſay, this Hive thus full in *June*, above and below, within and without the Combs, ſo that the Hive cannot contain any more, nay, there is not room for all the Family within Doors, but ſome muſt hang at the Mouth of the Hive, yet this very Hive of Bees thus diſcribed, without any Swarming, or other viſible way of diminiſhing them, you ſhall by

the

the latter end of *Auguſt* ſee room enough in the Glaſs-hive to contain above twice the Number as then remain: Now if any Man can give me any other rational Account of this large Vacuity in the Glaſs-hive, than the gradual Dying of the old Bees that went out with the Swarm, I ſhall be of his Opinion, otherwiſe, I ſhall look upon this one Experiment next to a Demonſtration, that the Hive daily growing thinner and thinner of Bees in *Auguſt* and *September*, is occaſion'd mainly by the gradual Dying of the old Bees that were in the Swarm.

Obj. But perhaps you will ſay, you tell us, the Bees have many Enemies that deſtroy them which perhaps may be the occaſion of this vaſt Emptineſs in the Hive.

Anſ. 'Tis true, they have many Enemies; and as true, by theſe are many of them deſtroy'd; but not to ſuch a Number as to loſe half, for Bees have almoſt as many Enemies in *May* and *June*, as in the latter Months, which kill many of them; yet notwithſtanding that, the Bees, by reaſon of their continual Breeding, do more than ſupply that Defect, and fill their Hive ſtill fuller and fuller; but it is not ſo in the latter Months, for as the old ones then die away by degrees, there is ſtill more room, and more to be ſeen in the Glaſs-hive, and the only reaſon of this great Vacuity is, becauſe all the old Bees which did occupy that Room are dead. I will not contend for a Month or two in their Age, and that is the moſt I can allow them; for tho' I account them Annuals, and am ſure that it is generally the Term of their Life, yet I have been

been ſometimes apt to think, that ſome of them that were bred in the beſt Months, as *May* or *June*, might continue 13 or 14 Months; but this I give only as a ſlight Opinion, rather (to let the Reader be ſatisfied, that I do not mean when I call them Annuals, he ſhould underſtand me that there is a Neceſſity for every Bee to die exactly that Day Twelve-month that he came an Egg from his Parent,) than any thing elſe, about their Age, which is plain that they die every Year, and the Bee-ſtock, tho' it be of many Years ſtanding, yet are all the Bees every Year young; ſo that the Caſe is very plain, that you need not take or deſtroy your Bees, with the old Woman as above, for fear they ſhould be old, and not able to work. Since the Bees are all young ones before the time of taking them comes, all the old ones having eſcaped their mercileſs Cruelty, by a natural Death, before that time. I ſhould not inſiſt ſo much on this Particular, which to the Reader may ſeem an indifferent Matter whether he believes it or no, did not I know from diſcourſing with thoſe that keep Bees in this Country, as well as others, that this Opinion doth ſo far prevail, that for this Reaſon little Improvement is made of them. They are led into this Miſtake chiefly, by ſeeing that if they do let a good Stock alone, which they ſeldom do, they will live ſeveral Years; thinking becauſe they are in the ſame Hive, that they are ſtill the ſame Bees, and that all that they have bred in thoſe Years, are gone off in ſwarming. But this is their grand Miſtake; they only

live

live many Years by Succeſſion, the Room of the old ones dying, being always ſupplyed with young, I do believe that a good Stock barring Accidents, with Care may live by Succeſſion near Twenty Years; but none that I ever heard or read of, were ſo ſottiſhly ignorant, as to believe that Bees could live that Age, any otherwiſe than by Succeſſion, no more than when we ſay ſuch or ſuch an Honourable Family hath liv'd in this or that Antient Seat Four or Five Hundred Years, we do not mean the very Perſons that are now to be found there, are Four or Five Hundred Years old; no, we mean that the Family hath liv'd there, and enjoy'd that Eſtate ſo long a Term of Years by Succeſſion; the Father often by Death, making way for the Son to inherit the Eſtate in that time. Thus the Bees may live many Years in the ſame Hive, and proſper well, and every Year increaſe the Number of Stocks by good Swarms, notwithſtanding the Old Woman's fatal Suſpicion to the contrary.

CHAP. IV.

Of the Bees Enemies, and their Remedies.

HERE give me leave to tell you the Bee is a very peaceable Creature, living in great Quiet, and by her unwearied Labours, taking the neceſſary Care of her own Houſe, and will not aſſault either Man or Beaſt anywhere but at home; and then too it is in

in Defence of their beloved Queen, their Young, and their common Treasure, which must subsist them all: Nay, so unapt is she to use her Spear, (on any other Account but her Loyal and Maternal Affection,) that you cannot force one of them, when in the Field gathering Honey, to sting you, she will take all private Affronts, you may beat her from Flower to Flower, do what you can to molest and hinder her in her work, she will take all, without in the least attempting to revenge her own Quarrel, is in all things patient, unless you disturb or come within the limited Bounds of the Palace and Person of her Royal Mistress, then indeed she will exert her utmost Courage, and to the Hazard of her Life, nay, often to the Loss of it; make you, to your Smart, know your Error: Yet have they many Enemies, some for one reason, some for another, which prove very destructive to these our faithful Servants. And here I shall treat of the chief that I have observ'd of them, with Directions for the Preservation of the Bees against them.

First, The first I shall take notice of, is the Mouse; this is a pernicious Enemy, and many Hundreds, (I know not but I may say Thousands of Hives) are by this Creature destroy'd every Year in *England*.

They are safe all the Summer when the Bees are in Vigour, from these kind of Vermin, but in Autumn, when the Hives grow more empty, by the Death of the old Bees, and also growing more torpid and dull, as cold Weather comes on, then the Mouse will venture in at the Mouth of the Hive, and first they will gnaw the lower-

most

moſt part of the Comb, where there is but here and there a little Honey, but growing more bold as the Weather grows cold, and the Bees more ſtill, they aſcend up into the Hive, and ſeize on thoſe Combs which are next to the Sides of the Hive, where commonly the richeſt Treaſure lies, they eat Holes thro' them, and ſo come and go thro' them at their Pleaſure, or when preſs'd by any Neceſſity, to the Damage, as well as Diſturbance of the Bees; ſo that the firſt warm Day that comes, that the Bees ſtir about the Hive, and examine all Quarters, they find their Honey partly eat, their Combs broken, and partly ſet a running; the Smell of which expoſes them to new Enemies, I mean the Bees of other Stocks ſmelling the freſh Honey, which come in like Thieves, when a Neighbour's Houſe is on Fire, not to help the Diſtreſſed, but to plunder them of their remaining Goods, and tho' the Stock were able well enough to defend themſelves againſt theſe ſecond ſort of Enemies, yet conceiving a Diſtaſte againſt their Hive, by reaſon of the deteſtable Smell of the Mice, they take a warm Day and fly all away together, tho' they had as good have ſtaid at home; for according to our vulgar Proverb, they leap *out of the Frying-Pan into the Fire*; let them go where they will, they muſt all periſh; for if they go to a hollow Tree, or an empty Hive, 'tis a wrong time of the Year to begin Houſekeeping. I have known thro' ſuch a Diſtaſte and Diſturbance, the Bees have gone all away, and left ſome Quarts of Honey behind them.

Sometimes

Sometimes the Mouſe will take another Method, and ſhelter himſelf betwixt the Hackle and the Hive, and there will make his Neſt, and at length eat a Hole thro' the Crown of the Straw Hive, and ſo break bulk with his Teeth that way to the Honey.

Now thoſe that keep Bees in Houſes, cannot be hurt this way by the Mouſe, becauſe there is no ſtay for him to make his Neſt upon the Crown of a naked Hive, but in the former way, thoſe in Houſes are as much expos'd, if not more, to the Mouſe, than thoſe on ſingle Stools. I had almoſt forgot a former Experiment, which I made about ten or twelve Years ſince, and which I think is fit to come in here. Being at the Houſe of my Friend Mr. *Bowyer* of *Celſdon*, (about Two Miles diſtant from *Croydon* where I live,) and talking about his Bees, I went out to ſee what Condition they were in, where I found a Hive which they ſuppos'd had been a good Stock of Bees, but lifting it a little, I found it very light, then turning it quite up, I found it full of Combs, but no Bees; and the Enemy that had driven the poor Bees away, had taken Poſſeſſion of their Caſtle for his own; the Mouſe being ſomewhat affrighted at my rough handling of the Hive, leap'd two or three times about the Hive, but inſtead of bolting out againſt me, retir'd back to the Crown of the Hive for his own Safety, and being a profeſs'd Enemy to all Creatures of what kind ſoever that are Enemies to the Bees, and call'd ſome of the Family to my Aſſiſtance, I knock'd him out on one of the Graſs Plats in the Garden, and there we deſtroy'd the De-

 ſtroyer;

ſtroyer; indeed I was the more careful in that Execution, leſt he that had already taſted of thoſe forbidden Sweets, (as it often happens with Creatures of a higher Dignity,) fluſh'd with Succeſs ſhould break into other Hives, and in time might have endanger'd all the Stocks in the Garden.

The Remedy.

AS to thoſe that keep Bees on ſingle Stools, (which is the way generally in *Hampſhire*, and other Parts of the Weſt of *England*) and ſo conſequently muſt hive Hackles over them.

1. Have no Swarms in Hives that are very old; for the Mice cannot ſo eaſily make their way, if at all, through the Crown of a new Hive, as they can where the Straw of the Hive, through Age, is almoſt rotten.

2. Put a good large Flint Stone on the Top of your Hive, betwixt the Hackle and the Hive; which, by its Coldneſs and Unfitneſs for that Purpoſe, will hinder the Mouſe from making his Neſt there. But however the good Bee Miſtreſs ought to examine the Caſe of every Hive, by taking off the Hackle, at leaſt once in every Month, leſt (eſpecially in the Months of *March* and *April*) the Mouſe break in upon you, and deſtroy the Brood or young Bees, and the Sandarach, or Bee-bread, both which they are extremely greedy of as their Food, if not more than of Honey. I have had more than one Experiment of this Matter, where the young Brood hath been eaten by the Mice, and the Honey left. But where there

there is one Hive deſtroy'd by breaking it open at the Crown, I believe there are an Hundred by their entring in at the Mouth of the Hive; and ſo the good Woman is diſappointed when the Spring comes: She is ſure ſhe left none but what were heavy and in good Condition, and able to ſtand over the Year, as their Phraſe is; but in this Hive and that, there is neither Honey nor Bees, but only empty Combs, and can no way account for the Loſs of them. But if you would take Notice when you take up ſuch dead Hives, of their Combs, how the uppermoſt Parts of them are gnaw'd, and many rough Holes in the Middle of the Combs, the Doubt would be ſoon clear'd how they came to miſcarry.

3. As to the Mouſe entring at the Mouth of the Hive, it is occaſion'd by an ill Cuſtom, which I find all over this Country, to cut a deep Gaſh thro' one of the Rounds of Straw, about an Inch and an half high, and as much in breadth; which Miſtake, inſtead of keeping the Mouſe out of the Hive, will let in two at a time. Now the way to remedy this, is not to leave room enough for a Mouſe to enter; then ſhall you be ſecure from this pernicious Enemy: When you have bought a new Hive, firſt try him upon the Stool whilſt empty, where you deſign to ſet your Swarm, whether your Hive have not a Hollowneſs ſome where or other in the Skirt, deep enough for Bees to go in and out at, for there are but few ſo exactly made, but ſuch a Hollowneſs may be found in the Skirt deep enough for that Purpoſe; if ſo, 'tis very well, your Work is done

to your Hand without cutting, only mark that Side where the Hollowneſs is, that when your Bees are hiv'd, you may know which Side of the Hive to turn outward: This Hollowneſs muſt be almoſt half an Inch high; if it ſhould be much ſhallower, the Drones, or Male-Bees could not paſs in and out; and if it ſhould be but a little above half an Inch, the Mouſe will invade them. But if you have no ſuch Hollowneſs in the Skirt of the Hive, then you have the Choice of three Ways to make it: Cut a Notch in your Straw-hive, not through the Roundal as before, but ſomewhat leſs, or at leaſt not more than half an Inch in depth, and 4 Inches in length, that they may have room enough to paſs in and out by one another, and not hinder their Labours. Or thus; Lay two ſmall bits of a Tobacco-pipe on the fore-part of your Stool, and then ſet the fore-part of the Hive on them, ſo will your Hive be rais'd at what height you pleaſe, by the Bigneſs or Smallneſs of the Pieces of Pipe; then with Lime and Hair, plaiſter up all but 4 Inches in the Front, for the Bees to play in and out at. And this latter Way I muſt approve of before the former But the beſt Way of all, for thoſe that keep Bees in Straw-hives, and will be at the Charge of it, is to ſend your Hives all to the Cooper, and let him ſet a narrow Hoop of an Inch, to every Hive, by drilling Holes thro' the Edge of the Hoop, and ſo driving wooden Pins, like Skewers, ſo that they may drive two or three Inches into the Skirt of the Straw-hive, and it will be very faſt, and then you may at your own Leiſure

and

and Pleasure, cut a Notch almost half an Inch high, and four Inches broad, as before: But if you are forc'd to use any of your old Hives, that have already those deep Notches cut in them, turn the Notch to one Side, and fill it up with Lime and Hair, and follow the former Directions. But however, it may not be amiss to set a Mouse-trap in every Bee-house, according to the Advice of the famous Dr. *Butler*; for tho' they cannot get into your Hives, and so can do you no great damage, yet if they harbour about the Bee-house they are an Offence to the Bees Suffer no long Grass or any thing else, about the Bee-house, that is likely to harbour Mice.

2. The Moth is also their Enemy; I mean the winged Moth; which doth convey his Eggs under the Skirts of the Hive, where being preserv'd from Cold, by the Heat of the Bees, they become a very large grey Maggot: I have seen some of them exceed an Inch in length, and doth much perplex, offend, and hinder the Bees; for tho if the Bees are very lusty, they will hale them out, as they come forth from under into the Hive, as I have often seen three or four, joyning their Forces together, till they have got him clear of the Hive, fly away with him as far as they can; yet if the Stock of Bees are but weak, these many times will keep them so, and at last encreasing in Numbers, breed on the Stool under the Hive, and at last go into the Combs, and breed on that Side where there are fewest Bees; and if the Decease be so far advanc'd, there is no Cure, they will either fly away, or dwindle

to nothing: You had beſt take them, while they have ſomething. To prevent this Miſchief, let every Hive be carefully plaiſter'd all round the Skirt of the Hive, to the Board of the Stool or Houſe, with a little well temper'd fine Lime and Hair, with a ſmooth Knife; ſo will there not be room for the Moths to get under the Skirts of the Hive, to lay their Eggs. But you ſhould, notwithſtanding this Precaution, take Care and examine all the weak Hives, in *March* and *September*, by taking them up gently in your Hand, and ſet them down ſoftly by, leaving the Place open where they ſtood; ſo with a Wing or courſe Cloth, rub away the Maggots if there be any, or any other Filth, dead Bees, Pieces of Combs, *&c.* and then ſoftly put them down in their Place again; ſo have you done your poor Bees a good Kindneſs, ſaved them much Labour, and done your ſelf no harm.

The Earwig is alſo a pernicious and very offenſive Enemy to the Bees, and lay their Young in the ſame Manner as the Moth, under the Skirt of the Hive, and in little Crannies about the Mouth of the Hive; and often they make very bold with them, (their Coat being Armour of Proof, againſt the Spear of the Bee) and entring in at the Mouth, or any other Place underneath the Skirt, if there be room, they lay their Eggs on the Stool, and in poor Hives aſcend even to the Combs themſelves. The Remedy is the ſame as with the Moth before ſpoken of, and at the ſame time of the Year; ſo that when you ſearch for the Moth's Young, you cannot miſs

at the same time, to meet with the young Maggots bred of the Earwig, which are much like them.

The Hornet is to the Bees, as a Bird of Prey is to the small Birds: I never saw one of them venture into the Hive for Honey; but he will seize on a single Bee, on or near the Mouth of the Hive, and like a Hawk carry her away in his Claws, and eat her. But of the Hornet there cometh no great Mischief; however, the best Way is to kill them, if you find any hankering about your Bees; which is not hard to do, they being but slow of Motion; or spoil their Nests if you hear of any near you.

The Wasp is a more dangerous Enemy if they come to be numerous, as in dry Summers they are; but frequent Rains doth much hinder their encrease, by chilling their Brood, and wetting their Combs, and sometimes drowning their whole Nest of both old and young together. They do little harm in *May* and *June*, indeed they will come about the Hive, but hardly ever attempt to go in, but pitch on the Ground, and seize on any dead Bee they can find, tearing her like a Vulture, eat a Part of her and then fly away with the rest of their Prey: But in *June* and *July*, they are both older and bolder, and will venture into the Hive to rob and steal; but their Fools Coat, and hoarse Voice, doth soon discover them, and seizing upon them, two or three at a time, they down with her House, and lay their fine Feathers in the Dust; tho' you shall see, that sometimes they will break away, tho' two

or three have hold of them, being much ſtronger than a ſingle Bee, and ſo will make their Eſcape; for now all the Stocks keep diligent watch and ward at the Porch of their Houſe, and 'tis no eaſy matter for a Waſp to paſs in without being examin'd by their Sentinels; but they being eager of Honey, are bold Intruders, and will venture in, tho' they come ſhort home, but if once they get frequent Admittance, as they often will in weak Stocks, (their Guard at the Door being but ſlender) they will never leave them, but daily augmenting their Forces, they will break open the ſealed Combs, after which, the other Bees will, upon the ſmelling the freſh Honey, come in, and ſhare the Spoil with them, which you may always know; for by lifting up the Hive in the Evening, you will ſee abundance of ſmall bits of Wax fallen down to the Stool, and about the Mouth of the Hive, not unlike the Saw-duſt of Deal-boards, and the only way left then, is to take them; the Remedy preſcrib'd by Dr. *Butler* to prevent this Miſchief, is to ſet Bottles with Verjuice, Beer, *&c.* in the Bee-houſe, or Pots cover'd with Paper, with a ſmall Hole in the Middle, which will catch many of them.

But here I muſt crave leave to differ from the Doctor, for the Smell of thoſe Liquors will draw more Waſps to you than otherwiſe you would have had; and tho' I muſt agree with the Doctor that many will be entrap'd, yet I have found by long Experience, that thoſe Bees have eſcaped theſe Enemies moſt, that have had none of theſe Traps, which I can attribute to nothing but their being drawn toge-

ther

ther by the Smell of the aforesaid Liquors. Now the best Way is to lessen the Number of these Wasps, and that is by destroying those large ones that you shall often see in *May*, (but never appear but one at a time) every one of these being a Mother Wasp, and carries a Nest about her, so that you destroy as many Nests as Wasps; but some of these must escape, and will make a Nest and breed many; therefore whenever you hear of a Nest in your Neighbourhood, be careful to destroy them, by scalding Water, or digging them in, and tread the Ground in hard upon them, or if in a Tree, with Brimstone Matches let them be destroy'd.

The Swallow is a great destroyer of Bees, and doth catch them flying, and eat them, and convey them to her young ones, for which I know no Remedy; but however, destroy their Nests in the Chimneys, and your Loss will be the less.

There is yet another Enemy which passes almost unsuspected, which doth destroy abundance of Bees, and that is the Sparrow, especially in their Breeding time: The manner of seizing their Prey is thus; they come hopping on the Ground before your Bees, and if they find none pitch'd on the Ground, they jump up, and take them flying, and away to the Nest with it, and come and fetch another. Indeed all the time of their having young ones, both Young and Old have their Living mainly upon Bees; the best Way to prevent, at least a good Part of this Mischief, is to encourage Boys in the Spring time to spoil

their

their Nests, and for now and then a few Farthings to the Boys, you may have all the Nests near you destroy'd.

CHAP. V.

Of the QUEEN BEE, and the Loyalty of her Subjects.

AND here as Princes ought to be treated of with all Respect imaginable, so ought we also on the other hand to take care so far to avoid Flattery, as not to suffer any thing to escape the Pen, which will not hold out full weight in the Ballance of Truth: And here a great Discouragement falls heavy upon me, my Pen seems to move slowly, not that there wants Flax on the Distaff to maintain the Thread, but only the Consideration, that the Excellency of my present Subject is such, that instead of moving Admiration, I despair of gaining Belief; but be it as it will, I shall go on with the Truth of my Observations.

The Queen-bee then, I think is of all Insects the most glorious; her Body is bigger a great deal than the Honey-bee, and very much longer; yet her Wings are no longer than that of the Honey-bee, which shews, that she is not design'd by Nature for Labour, nor long Flights, which is the continual Business of her Subjects: As to her Shape and Colour, her upper Parts are of a lighter brown than the rest, having the Resemblance of a Velvet Cape, or Fur Gorget about her Shoulders; her hinder-

part

part from the Waſte, (which is very ſmall) as it is much longer than the Drone, or the Honey-bee, ſo ſhe is much more taper than they; and whereas the Drone and common Bee are brown all over the hinder-part, the Queen in that part is as black as Jet, or poliſh'd black Marble; and whereas the two great Legs of the Commons, are quite black, hers are as yellow as Gold, as alſo is all along the under part of her Belly. In ſhort, the Queen doth as far ſurpaſs her Subjects in Shape and Beauty, as the fineſt Horſe that ever ran on *Banſtead Downs*, doth the moſt common Forreſter: And as ſhe doth ſo much differ from her Subjects in Shape and Beauty, ſo ſhe alſo differs from them in her Breeding. *Firſt*, The Egg of her Royal Mother, which Egg is caſt into a Royal Cell or Matrix, made by her Vaſſals for that very purpoſe, in a different Form from all the reſt, (which are Mathematically Six Square) and is moſt exactly round, very much thicker in Wax, and the Cell proportionable to her Body, much larger than thoſe the common Bees make for themſelves; but this round and Royal Palace is never in a Comb amongſt other Cells, but always by itſelf, and raiſed from a large Foundation, either from the flat of a Comb, or ſometimes on the edge of a Comb, for I have often ſeen both; but when this Regal Manſion is built on the edge of a Comb, then is that Comb divided for that purpoſe, and is always about the middle of the Hive; and inſtead of this middle Comb running thro' entire as the reſt, it is divided into Two Combs, and hath two Edges, in the

middle

middle Edge of which, this round Cell is built, always leaving Room for her Attendants to come round her; there is always one in every Hive of these Palaces, in some Two, and in some I have seen Three, but this is seldom to be seen. As to her Power, the Grand Seignior with all his Janizaries about him, ready to execute his most hazardous Commands, or the (nearer home) King of Slaves, is not half so absolute as the *Queen of the Bees*; and this her absolute Power over the rest, is not procured by any Tyranny or Cruelty by her exercised over her Subjects, but from an innate Loyalty natural to these Creatures, not to be diverted by Envy nor Faction, towards this their lawful Sovereign.

Oh, that all the Thousands of this *Britannick Israel*, were but so Loyal to our Most Gracious King GEORGE, who by all the Sacred Ties of Law and Nature, hath an undoubted Right to; and by His boundless Clemency and Goodness, doth in the highest manner deserve our utmost Loyalty: Where *Britons*, where is your boasted Loyalty, that the very Insects of your Country shall reprove you? Whilst they join their Forces together with an undivided Fidelity, against all that dare presume to invade either the Crown, or Territories of their King? You degenerate too often into Faction, the very Seeds of Rebellion, which hath hurried you blindly on, even once to the dipping your sacrilegious Hands in the Blood of your Sovereign. But to stay no longer on this melancholy Digression, in hopes the Fidelity, Courage, and Loyalty of my Bees may teach

you

you your Duty, I shall proceed. All is done by her Command, as Working, Fighting, Swarming; there being as much Inclination to Obedience in the Subjects, as in their Queen to Command: But you will say, how can you know all this? To which I answer, that none that have been so long Conversant with Bees as I have, and made but tolerable Observations, must be fully satisfy'd in the Premises by ocular Demonstration. But if you would know how I came to know the Nature of this Monarchy, take these few Observations following.

First, Many Years ago I having a mind to satisfy my Curiosity about the Queen-bee, was resolved to run the hazard, at least of destroying a Swarm of Bees for that purpose, so in the Morning, about half an Hour before Sunrising, I took a Swarm of Bees that had been hiv'd the Morning before, and carrying it into a Meadow joining to my Garden, and there with a strong Stroke upon the Ground, shook the Bees all out in a Lump upon the Grass, and as soon as they were a little quiet from the Disturbance that so violent a Motion caused, I laid my self down on the Ground, and with a little Stick in my Hand, gently stirr'd the Bees, in order to find the Queen-bee, and having describ'd her to Three or Four of my Family which were then with me, desir'd them, as I stirr'd the Bees, if any of them saw such a Bee, to shew her me; all being thus upon the search, at length one of them discover'd her, and pointing to her, I saw her, and quickly caught her in a Box which I had ready for that purpose, and carried her into my Parlour,

where

where opening my Box, I let her fly, and a few of the other Bees who were taken with her, who, as is natural to them, did fly againſt the Glaſs Window, ſo taking a ſharp pair of Sciſſars, I cut off one of her Wings to diſable her from flying, and then put her again into my Box. The firſt thing I was willing to know, was, what they would do without their Queen, but this was ſoon diſcover'd, for they were in a Quarter of an Hour like Sheep without a Shepherd, (which was as ſoon as the whole Bunch could know that the Queen was not amongſt them,) which they ſoon diſcover'd, by ſpreading themſelves abroad upon the Graſs; for, whereas 'tis natural to theſe Creatures to keep cloſe together like a Bunch of Grapes, they now ſpread themſelves as broad as a Cart-Wheel, running up and down, and with a piteous and diſcontented Note, ſearching for their Queen. So when they had ſpent an Hour, or thereabout in this fruitleſs Search, they took Wing, and flew to a Hedge, and their pitch'd, in which Flight and Pitching, there were Two Things remarkable. *Firſt*, That they flew to the ſame Hedge where the Swarm had pitch'd the Day before, to ſearch for her there, where they laſt had her Company. *Secondly*, How ſoon by the Abſence of one Bee, this Monarchy was turn'd into Anarchy; for now (inſtead of going altogether in a Bunch, which is natural to them when they have their Queen,) they were divided all along the Hedge for Ten Yards together, in little Bunches, 40 or 50 in a Bunch, and ſome larger Bunches; ſo then I pull'd the Box out of my Pocket, where the

Queen-

Queen-bee was, being willing to know whether or no they would again acknowledge their Crippled Sovereign, and my Thoughts then were, that they would not, ſhe having been ſo long from them, and her Wing cut off, or the Smell of the Box, I did not know but theſe, or ſome of theſe, might give them ſome Diſtaſte; but to my great Amazement, and all that were with me, I no ſooner open'd the Box, and laid it, Queen and all on the Bank, near to one of theſe little Bunches, but they immediately began to gather from hither and thither all about my Box, where the Queen was, which was ſoon cover'd up, and in leſs than a quarter of an Hour, they were all gather'd together about their Queen, rejoycing; which Rejoycing is eaſy to perceive by thoſe that are uſed among them, by their Notes. So having found their Queen again, they lay all contented together, not running up and down, and ſpreading themſelves as before, when ſhe was abſent. So Night coming on, I again hiv'd them, and brought them into my Garden, for if I had let them remain abroad all Night, the Coldneſs of the Night would have chill'd them; ſo that I ſhould not have been able to make any farther Diſcoveries with them. Next Morning, being fine Weather, I again knock'd them out on the Graſs, in the Meadow as before, where they ſoon united themſelves together about their beloved Queen, where I let them lie for ſome Hours, to try if they would riſe, but here was the height of Loyalty expreſs'd. The poor Queen, as I told you above, had one of her Wings clipt, and ſo was not able to fly, and

lead

lead them off to some Place for their common Preservation, and these her Loyal Subjects chose rather to perish with her, than to leave her in her Distress. Then I again took away their Queen, and put her in a Box as before, and my poor Bees fell again to spreading themselves in search of her; so when they were thus spread abroad, I laid down their Queen near one side of this searching Squadron, when to my great Satisfaction, and Wonder of some Friends, which I had sent for on purpose, they all immediately ceas'd their spreading themselves, and searching every way for their Queen, they all march'd directly towards her; before they had quite cover'd her, to save my self the Trouble of searching for her in the midst of the Swarm, I took her up and laid her down on the contrary Side to where I took her up, when presently you might see them all turn their March to her again; so I often took her up from one Place, and laid her down in another, and these poor loyal and loving Creatures always marching and counter-marching every Way as the Queen was laid: When I had shew'd my Friends all the Diversion that so great a Curiosity could afford them, I suffer'd them again to encircle her, and immediately they closed from the right and left, Front and Rear, into a thick round Bunch, no broader than the Crown of my Hat, and so lay very well contented together, the Commons still expecting when they should fly with their Queen as usual; but she not being able to fly, could not lead them off, and not a Bee of them would offer to leave her, tho' by this time, no doubt

but

but they began to want Food; ſo the Evening drawing on, I again hiv'd them, and brought them into my Garden, to prevent their being chill'd, and the next Morning knock'd them out again upon the Graſs, where, to try farther Experiments, I often took away their Queen, and with her could march them any where, this way and that way, and then put her to them again, for I was reſolv'd now to try whether or no theſe Loyal Creatures would go on thus to the end, and crown theſe their Loyal Principles with Martyrdom: The Commons taſted no Food, nor would they fly to get any, unleſs their Queen had been in Safety. And indeed this their Loyalty and Affection was equall'd, if not outdone by their Queen; for when I had her away from them, I gave her Honey ſeveral Times, but ſhe would not ſo much as once taſte of it without her Subjects. But to come to a Concluſion of this curious, tho' melancholy Obſervation, they ſtill kept their Integrity, and Famine it ſelf could not leſſen their Loyal Affection to their Prince; for after they had liv'd five Days and five Nights without the leaſt Food, they all died by Famine, except the Queen-bee, who liv'd ſome few Hours longer than her Subjects, and then dy'd; diſdaining a Life that was no Life to her, without the Company of thoſe which ſhe could not have, they having all given up their Lives for her Sake.

Surprizing was the Sight,
And rarely to be seen,
Such Loyalty in Subjects,
Or Goodness in a Queen.

I challenge all the World,
England *except, to find*
A People half so Loyal,
Or Princess half so kind.

I think this one Relation of Matter of Fact, to be sufficient to prove all that I have before asserted; yet I shall give you one or two more in this Place, besides others that must unavoidably come in, in their proper Places in this Tract.

Secondly, I have often put two Swarms together, to make the Numbers sufficient for one of my large Boxes. The Manner of which is describ'd in the Chapter of Swarming. Every Swarm hath a Queen-bee among them, and when the second Swarm comes to be added to the first, this is plain Matter of Fact, that always the first Night one of these Potentates is slain, or expell'd the Hive. It is here as with *Cæsar* and *Pompey*, one would admit of no Superior, and the other of no Equal. For the most part one of them is thrown out dead under the Hive.

Obj. But you will say, where is the Loyalty of these Creatures you spoke of, when here is a Queen slain by them?

Ans. This makes not against, but much for the Monarchy of the Prince, and Loyalty of the Commons; for here is a Swarm with their Queen

Queen ſettled, it may be a Week or more in the Box, before the ſecond Swarm invades theſe her rightful and lawful Territories; Diſpatches of Guards are ſent from the firſt Diſturbance given, to examine into the Cauſe of that Diſturbance in the Hive, who finding there is a Pretender to her Crown and Dominions, immediately ſeize and diſpatch the invading Prince, and a Pardon is granted to all her Subjects, who now become one numerous Family. Sometimes in this Buſtle I have known the Second Queen creep off wounded, and have found her either on the Bee-ſtool, or on the Ground, but always with her Guard, who never leave her till ſhe is dead, (which Guard is about 100, more or leſs, according to the Bigneſs of the Swarm,) all clinging ſo faſt about her, to keep and preſerve her from Peril, that it has been difficult for me to part them with Skewers, or ſuch like Utenſils; and always when I find ſuch a Lump of Bees, I know there is the Queen in the Middle of them, and accordingly call my Family out, or any others that may happen to be within, to ſee this glorious Inſect. So taking her away from them, I put her Guard to their Fellows, who are readily receiv'd into Grace, and made free Deniſons of the Colony; for coming without any Leader, there is no Oppoſition, knowing by natural Inſtinct, that the greater their Numbers are, the better they are able to provide for, and defend themſelves.

CHAP. VI.

Of Swarming, and the Reasons why; and Hiving the Swarm.

THE two Swarming Months generally are *May* and *June*, tho' there are sometimes Swarms in *April*, and very often in *July*. Those in *April* are in great danger (if cold Weather should follow their Swarming) to be starved, before they can get any thing to begin House-keeping withal. Those that swarm in *July*, tho' they are in no danger of any sudden Want, Honey gathering being then plenty everywhere,, yet are they in great danger in the Winter following, for fear, least having so short a summer of it, they should not have gathered Honey enough to serve them till the next Spring.

The Reason of their Swarming, is for want of Room in the Hive; for when they have bred so many that the Hive will not contain them, then, after they have lain out a while in a large Bunch at the Mouth of the Hive, in a fine warm Day generally they Swarm; but as there is no General Rule without an Exception, so here you will sometimes find they will not Swarm, tho' they are very full, and lay out with a Bunch of Bees at the Mouth of the Hive as big as your Head, and this they do for a Month together, tho' the Weather prove never so Favourable and will not Swarm. The Reason is, there is no Prince ready to

go

go forth with the Swarm; ſome Accident or other hath happened to the Royal Brood within, and they will rather never Swarm at all, than go off without their beloved Governeſs.

The beſt time for Hiving your Swarm, is preſently as ſoon as they are moſt of them pitch'd; and this Way commonly prevents their flying away: For you muſt note, that the Bees are always provided of a Place, which they deſign for their Habitation before they Swarm: either in ſome hollow Tree, or in the hollow part of ſome old Building, or in ſome Hive, perhaps a Mile or two diſtant from you, where other Bees have died, and left their Combs; which the Swarm have already provided, by cleanſing out all the Filth, or the Dead Bees, or whatever elſe may be offenſive to their cleanly Nature; and they only pitch on the Tree near you, to gather all together, that they may go a way together to their prepared Houſe. I have had a ſtrange Swarm of Bees come into my Garden, and fly directly into a Hive of old Combs, which they had been every Day at work upon, to cleanſe and make fit for them for fourteen Days before; every Day about an Hundred or more hard at work, pulling out and clearing the Hive of Dead Bees, old Sandarach, and Moths; and when quite clean, as I expected, the Swarm came, and went into their thus prepared Houſe, But however, tho' they always provide themſelves of a Houſe before they Swarm, and take much pains about it,

yet if you are early enough in your taking the Swarm, and your Hive be clean, and not too old, they finding themſelves at unawares in a convenient Houſe, have no mind generally to leave it; tho' ſometimes they will, and give you a great deal of Trouble, and loſe them at laſt: But if they riſe again out of your Hive, either the ſame Day or the next, as ſometimes they will, and pitch again on a Tree near you; then beſure hive them not in the ſame Hive, for 'tis plain, they had ſome diſlike of it. The manner of taking them into your Hive is various, according to the pitching of the Swarm: If your Swarm pitch upon a Tree that is pretty high, and be upon a ſingle Bough, then the beſt Way to take them, is with a very ſharp Knife to cut off the Twig gently, elſe you will ſcatter the Bees, and lay it down on a Napkin under that very Tree they were cut from, or as near it as you can, and gently ſet your Hive over it; ſo will they undiſturb'd crawl up and hive themſelves; ſo that you have nothing more to do, than in the Evening to remove them to their Place. But the general way of hiving them, is to hold the Hive under them, and ſhake them in, and having a Napkin and a Stick to keep up one ſide of the Hive, ſet them down on it; but let it be under the ſame Tree always, that the Bees that hanker about it (which they will always do, more or leſs) may be within hearing of the Swarm, and ſo go down to them, which they will naturally do; but if you ſet down the Swarm at any great Diſtance from the Place where they pitch'd, many will be loſt, or at leaſt

leaſt return home again, which will be a leſſening of the Swarm: But if the Swarm part, and pitch part of them on one Tree, and part on another, (as ſometimes they will) that you may not be at a Loſs what to do in ſuch a Caſe, take the Directions following. Hive the two Parcels in two ſeveral Hives, and then let them ſtand within hearing of one another, and 'tis very likely that before Night comes they will ſave you any farther trouble, by going all into that Hive where their Queen is, but if they do not, then about ten a clock at Night proceed with them, as in this and the following Pages ſhall be taught, how to joyn two Caſts or ſmall Swarms into one. I ſhall not dwell long on this Subject, becauſe almoſt every Body doth already underſtand how to hive them, one way or other; and it matters not much, whether they are cut down, or ſhaken into the Hive, if they ſtay quietly there: Only here I muſt not omit to direct you about managing of the Caſts, or ſecond Swarms: (which, as they are commonly order'd, come to little or no Profit) Now there is not, as I think, ſcarcely one Caſt in twenty, that will gather enough Honey to keep them till the next Spring; ſo that they are generally taken up at taking time, with the old Stocks, but they have ſo little Honey in them, that they turn to no account; now the Way to make ſomething of them, is thus, (and pray believe me, for it will be to your great Advantage) put two or three of theſe Caſts together into one Hive, and ſo they will become a good Stock, perhaps as good as any one of your Swarms, and ſtand over

the Year very well; the Manner how to perform this ſeeming difficult Work, is very eaſie when known, which here ſhall be faithfully taught: When you have a Caſt or ſecond Swarm, take it into the Hive, as you do the Swarms, and put it in its place; then perhaps two or three Days after, or a Week, you may have another Caſt, up and pitch'd; let this ſecond Caſt be hiv'd by it ſelf alſo in an empty Hive, and ſet under the Tree where it pitch'd, as before, till Night; then you muſt put this ſecond Caſt to the firſt, thus: Spread a Napkin, about ten a clock at Night, on the Ground, cloſe by the Stool of the firſt Caſt, then lay a Stick croſs the Napkin, then fetch your ſecond Caſt, that ſwarmed that Day, and with a ſtrong Stroke on the Stick which lies croſs the Napkin, knock out all the Bees, which come all out at that one Stroke upon the Napkin, in a broad Lump; then, throwing the Hive out of your Hand, take your firſt Caſt off from the Stool, and ſet over the Bees on the Napkin, ſo will they, in about an Hour, all crawl up, and become one Family: If any of them, as ſometimes they will, hang about the outſides of the Hive, let them with a Wing be bruſh'd off upon the Napkin, and they will ſoon go to their Fellows; ſo about eleven or twelve a Clock, take up the Hive, and put it in its place; ſo have you two Caſts in one Hive: In the ſame Manner you may put a Third and a Fourth, and ſo you may have a ſtrong Hive of Bees for the next Year; for if they are in ſmall Parcels, they can do no good, for out of ſo ſmall a Parcel as one Caſt,

when

when all their Offices are provided for, there are so few to gather Honey, that little can be done; some must be appointed to keep the Brood warm, in order to breeding, some to keep Court with the *Queen*, some to keep Guard at the Mouth of the Hive, to keep away Thieves. But when by this Means of doubling the Casts, you have augmented your Numbers, they will have to spare to supply every Occasion, and sufficient to gather Honey for the Family, stand all the Winter, and swarm the next Spring as well as any of the other Stocks; the greater Quantities of Bees there are together, the better they are able to provide for themselves; my Meaning is, that one Peck of Bees in one Hive, will get much more Honey than two half Pecks will do in two Hives. The Reason why we put them together in the Evening or so late, is because by this Means we prevent two great Inconveniences. *First*, If it were in the Day, and they finding such a Disturbance in the Hive, tho' the first Swarm that was at home, and had made some Works, would, 'tis probable, stand its Ground, yet 'tis very likely the second would rise again, and perhaps fly quite away; whereas, being in the Night, they cannot rise, but all Night crawling one among another, they are united into one Monarchy, under one Queen, for they dispatch the Queen of the second Cast most commonly before the next Morning, and cast her out, tho' not always dead: Sometimes I have found her on the Ground alive, but never without her Guards about her, about two or three Hundred,

more

more or leſs, according to the bigneſs of the Caſt ſhe belong'd to, which Guard *De Corps* never leave her till ſhe is dead; for tho' the whole Swarm is confus'd with the other, yet theſe, whoſe immediate Buſineſs it was at that time to guard their Sovereign, are ſo faithful in diſcharging of that Truſt, that they venture their own Lives for her Safety; and tho' on the Ground with their Queen in the Night, in danger of being chill'd to Death, yet to preſerve their Sovereign from Cold or Danger, they all cling ſo cloſe about her, that they ſeem to be one entire Creature, and 'tis with ſome Difficulty that I have got them apart, to ſave the Bees, and put them to their Fellows, which you may eaſily do when you have got away the Queen, but not before.

But *Secondly*, If you would put two Swarms or Caſts together in the Day time, you will ſee the moſt dreadful Battle betwixt them, that is poſſible to be conceiv'd, to the great Danger of both Swarms or Caſts; for they will never give over fighting in the Hive and out of the Hive, till one of the Queens is kill'd, and perhaps not then neither; for many of theſe ſmall Warriors will not preſently know that the other Queen is dead, and ſo will keep on fighting to death for their own Queen; for till the Queen of the Hive doth come to know it, and cauſe the Retreat to be ſounded in her Camp, there is no giving over fighting; but then admitting all the Subjects of the ſlain Queen to grace, they become one Family. But this great Hazard, Miſchief, and the

the Loſs of ſo many Bees as muſt fall in the Battel, is prevented by doing this Buſineſs at Night.

Many are the ways that Country People have of Dreſſing the Hive before they put the Bees into it; ſome with ſtrong Beer, others with Water and Salt, others with rubbing the inſide of the Hive with Fennel, ſome with Bawm; but the beſt way, if you will do any thing to the Hive at all (for they will like it well enough as it is if it be clean) is to rub it very hard all over with a coarſe Cloth, to get off the looſe Straws, or any thing elſe that will come off with rubbing, and then with a little Water and Honey let the Hive be rubbed only in the upper part, which may make them the more willing to aſcend. The Reaſon why you rub and cleanſe the Hive very well before you put the Swarm in it, is to ſave theſe cleanly Creatures a great deal of Labour, which elſe they muſt take to clean it; nay, when you have done what you can for them this way, they will have much Work to do, before they will think it fit for their dwelling, as appears, if you take notice of the Place where the Hive ſtood with the Swarm on the Napkin the firſt Day, there you will ſee abundance of ſhort bits of Straw gnaw'd off by the Bees (that ſtood out in their way) with their Fangs; and if you will lay your Ear to the Hive any time of the Night after they ſwarm'd, you ſhall hear them very buſy about this Work all Night long.

CHAP. VII.

Of Feeding the Bees.

THIS one Chapter, if minded, would do the good Bee-Miſtreſſes great Service, for there is nothing that they are ſo ignorant in, as in this matter; and I verily believe, in their way, they kill more Bees than they preſerve, and that there is not one in twenty that they feed, that comes to ſee the next *May*. They have ſeveral ways of feeding their Bees, the moſt general way, is to take two or three hollow Kexes, and cut them along through the middle, and ſo fill the ſhallow Gutters with Honey or Sugar, and put them in at the mouth of the Hive in hard Weather, and let them remain till empty, and then fill them again, and ſo on. Now this is a moſt pernicious way for two Reaſons: *Firſt*, for the manner; if you would feed your Bees, 'tis to no purpoſe to put in ſuch ſmall quantities, which may do them harm, but can do them no good; for if the Bees come down in the cold Weather to feed, they will be ſo chill'd, that ſcarce half of them will recover up into their Combs again: But, *Secondly*, 'tis a wrong time, the Winter not being the Seaſon (by any means) for that Buſineſs; twice a Year you ought to examine all your Hives or Colonies, that is, in *September* and *April*, but chiefly in *September*, that being the moſt proper Month; and when you have examined all by lifting them up, you will

will eaſily know which of them lack Feeding: Thoſe that you have reaſon to think weigh twenty Pounds and upward, need none of your Help; but if you want Bees and find ſome Stocks poor in Honey, but full of Bees in *September*, then you muſt conſider how much they ſtand in need of to keep them till next Spring, and then give it them either altogether in a large Diſh, or every Day a large Plate full, till you have given them their full quantity. The manner of Feeding them is thus carefully to be obſerved: *Firſt*, prepare your Honey thus, Take ſix Pounds of Honey, and a Pint of Water, and ſet it over the Fire to melt; and when it is well melted and mixed together, then pour it out into your Diſh, or Plates; and when cold, put it under your Bees thus, If it be only a Plate which will hold about a Pound, then with three or four pieces of white Paper, cover the greateſt part of your Honey in the Plate, and then go with it to your Bees, and gently lifting up one edge of your Hive, ſlide under your Plate, and ſo every Day till the Hive hath the quantity allotted it; obſerve, that the next Morning after you have put under your Plate, you may take it out again as clean and dry as if no Honey had been in it: Thus will they carry it up, and lay it in the Combs againſt a Needy time, where they can come at it, without running the hazard of their Lives, by coming down to the Bee-ſtool to be fed out of a Kex. But if you find that your Hive wants any quantity, as four or five Pounds, then 'tis as good a way, to take three or four old dry Honey-combs, and put in a large

Diſh

Diſh that will hold all the Honey, and lifting up the Hive, ſet it on the Diſh, and in about 24 hours they will have clear'd it, not by eating it up, but carrying it up into their Combs, and ſafely lodging it there for their Winter Store. I gave this very Year about five Pounds of Honey, all at once, to one of my weak Colonies. Now the reaſon why we melt the Honey with Water, is becauſe otherwiſe the Bees, tho' they would come down and eat a little of it, yet could they carry none of it into their Combs, and ſo it will do them little or no Service. By melting it as before with Water, you bring the Honey, which was before very hard, to the conſiſtence of Honey as it is at Summer, and ſo they are capable to carry it up into their Store-houſes.

Thus far of the Matter of which Bees muſt be fed, it muſt be of Honey; and the manner, it muſt be made ſoft as before. Now for the time, and in this alſo you muſt be very careful: *September* is the beſt Month; not but it may happen that there may be as good a time in *October*, tho' not ordinarily ſo. It muſt not be in a very Cold time, nor in Froſty Weather, for that will not do, becauſe the Bees will not come down to it, or if they do, will be much damaged by the Cold; not in a hot Day, when the Bees are much abroad, but in a moderate time, when few Bees are abroad, becauſe if it ſhould be in a hot Day that you give them the Honey, the other Bees ſmelling the freſh Honey, will croud in upon your weak Stock, not only for a Share of their preſent Feaſt, but by that Means diſcovering their

their Weakneſs, would never leave them as long as they have a drop of Honey left; therefore it muſt be very moderate Weather, and the very beſt time for feeding, is in a warm Rain, in the Month of *September*, putting under your Honey about Seven a Clock at Night, ſo will they immediately fall to work to carry up Honey into their Combs, and continue the greateſt part of the Night in that Work, and ſo be in no danger of the above-mentioned Diſaſter. When you have thus examined, and fed all that lack feeding in *September*, you ought to cloſe up your Hives all round with Mortar excepting the Place where they go in and out at. And it is to be hoped, if you have done your Work well, you will have nothing more to do for them till after they have done a great deal for you, and requited your Care by their unwearied Labours the next Summer. But however, you ought in *April* to examine them again, and ſee if you have not been a little too ſparing in your feeding the laſt *September*, and if you find it ſo (according to a vulgar Proverb, *We ought not to loſe a Hog for a Half-penny worth of Tar*) give them another Plate or two, obſerving the Rules above, or elſe perhaps for want of giving them one Pound of Honey now, you may loſe a good early Swarm, and the Stock itſelf, with 50 or 60 Pounds of Honey in them, which would render you *Penny Wiſe and Pound Fooliſh* with a witneſs.

CHAP.

CHAP. VIII.

Of their Wars, and Robbing one another.

ALL Perſons whoever, that have kept Bees, well know that there are great Wars and Fighting amongſt them, by which Fighting, many of them are deſtroy'd; but I find there are very few that know the true Cauſe of theſe Wars and Fighting that is amongſt them, and ſo conſequently are ignorant of the Means how to prevent this fatal Calamity. Now here I ſhall briefly treat of the Cauſes of theſe Wars, and the beſt Remedies that I have by Experience found to prevent the ſame.

Firſt, The greateſt Cauſe I find, is what is implanted in their own Nature. And here let me be rightly underſtood, I mean not that there is a Principle of Cruelty in them, that they take delight in killing one another, for it is far otherwiſe: But they have in them an eager Deſire of gathering Honey, and when they find the Weather warm, and no Honey gathering in the Fields, which happens very often in the Spring before the Flowers are blown, and in Autumn when they are all gone off, now it ſo happens to theſe poor induſtrious Creatures, that a warm Day coming in either of theſe Seaſons, the Bees are thereby called out to Labour; but after having ranged the Fields, Gardens, and pleaſant Meadows, without finding any Honey, they range ſtill up and down in purſuit of Honey, but can no where

where find it, but in the Stocks of other Bees, they will, with the hazard of their Lives, venture for ſome of it; but they play theſe Pranks far from home (tho' not always, for I have known them play the Thief in their own Neighbourhood). Now the Bees that are thus abroad upon the Search for Honey, very rarely aſſault a very ſtrong Stock, but filch and ſteal amongſt the weak ones. Now, tho' every Stock, nay the weakeſt do keep Guard in warm Weather, yet ſome of theſe robbing Bees will thruſt in by the Guard, and whilſt the Sentinels are attacking and examining ſome of the bold Intruders, others will ſlip in and rob and ſteal; and being animated by their own Succeſs, they renew their Aſſault the next warm Day with greater Forces, carrying every Day more and more till they have broken Bulk, that is, torn open the ſealed Combs, not that the Bees thus aſſaulted are all this while idle, and tamely ſuffer themſelves to be thus pillaged, no, they ſtoutly renew the Fight every time they come, in which many are ſlain; they double their Guards at their Porch of the Hive, engage the Aſſailants both within and without the Hive, ſo that you ſee a moſt dreadful Battle betwixt the true Bees belonging to the Stock, and theſe robbing Bees, which will never give over, if once they have broken Bulk, but 'tis ten to one in three or Days your Hive is quite ruined; ſometimes after ſuch ſtriving and fighting you find all quiet, only every Day Bees ſtriving to get in at the mouth of the Hive, and going out with great difficulty, becauſe of the preſſing of others to

go in; so that sometimes, if the Passage into the Hive be but small, you will see a Bunch of Bees (all striving who should get in foremost) as big as ones Fist; the cause of which is this, In one of the foregoing Days of Battle, the *Queen-Bee*, belonging to the assaulted Stock, did lose her Life, at which time, as soon as it was known to all her Subjects, there was no more Fighting, or Resistance, but all became one People with the Robbers, and away they go with them, richly laden with their own Spoils, leaving the Hive empty of Bees, and unguarded, returning every Day with these their new Acquaintance to Pillage their old Castle, and carry their Treasure to their now new Lodgings; and this causes the Throng at the Porch of the Hive to get in, for there being Honey to be had within for fetching, and now no opposition from within, they follow their Blows with great Diligence; for the Bees will not fight one stroke longer to defend their Hive and Honey, than they have their Queen to animate and command them, looking upon themselves, and all their Treasure, not worth defending, or any longer contending for, after the loss of their Sovereign.

No Amazonian *Dames, nor* Indians *more,*
With Loyal Awe their Idol Queen Adore.
Whilst she survives, in Concord and Content
The Commons live, by no Divisions rent;
But the great Monarch's Death dissolves the Government.
No Council call'd, both Love and Valour cease;
The Old they Die, but none supply their place.

All

All goes to Ruin, they themſelves contrive
To rob the Honey, and ſubvert the Hive.

So whenever you ſee things come to this paſs, and a Throng at the Door, go at Night, when all are return'd home, and lift up the Hive; but you will find it to be a Houſe without Inhabitants, tho' perhaps it may (at leaſt ſome of the Rooms) be tolerably well furniſhed with Goods, which you having moſt Right unto, may take for your pains. By this Diſcovery you will ſave all the Honey that is left in the Hive, which otherwiſe would every Day be fetch'd away till it was all gone; beſides, it prevents a Deceit upon your ſelf, for ſeeing Bees go in and out, you are apt to think you have there a good Stock of Bees, when indeed there are no Bees at all, but theſe Thieves all Day, and at Night there are none, neither true Men nor Robbers. But this Fighting and Robbing is not all times alike, but is more or leſs fierce, as the hive, is more or leſs ſtrong, that is aſſaulted; for if there be but few Bees, they are ſoon overcome, but if many, they will make a vigorous Reſiſtance, and you may ſee Thouſands ſlain on the Ground.

Another Cauſe of their Fighting, is, when they are overcome in Battle by the Robbers, and forced to leave their Hive, and ſhift for themſelves where they can (for they never join with the Robbers unleſs their Queen be ſlain) then their Queen and they fly about till they find another Bee-garden, by their exquiſite Smell, whereinto they immediately enter; and

now being by their neceſſitous Condition (being without Houſe or Harbour) become deſperate, they ſeize ſometimes upon one, and ſometimes more Hives, and endeavour to get in to dwell there; for generally this ſad Work is in the Fall of the Leaf, when it is too late for them to begin Houſe-keeping for themſelves; ſo that theſe poor Bees, who are juſt now ruin'd by Robbers (as it often happens to honeſt Men) are forced to be Robbers of others; but here they are in no better Caſe; for the other Bees finding themſelves ſo ſuddenly aſſaulted with ſuch Numbers, they take the Alarm, the Trumpet of War is ſounded, the Warriors are called forth, and being animated by their own Queen (and the Deſperateneſs of their Condition, if they ſhould be overcome) they with inexpreſſible Valour, oppoſe themſelves to their Aſſailants, where, in a very ſmall time, you ſhall ſee the Ground cover'd with theſe Female Warriors. About 12 or 14 Years ago, as I was at Dinner with my Family, there was one knock'd at the Gate, and told me me there was a Swarm of Bees flown into my Garden, in hopes (as I ſuppoſe) to have ſome Reward for telling the good News. But this being in the Month of *Auguſt*, I knew they muſt be a Company of Robbers, and ſo told my Intelligencer; but he reply'd he knew it was a Swarm, for he had rung them with a Pan half a Mile, by which I knew it was indeed a Nation of Robbers, who had been diſpoſſeſs'd by ſome ſtronger than themſelves; and going into my Garden I found it ſo to my Coſt, for they made a ſad Diſturbance among

my

my Bees, ſeizing upon ſeveral Hives, but more eſpecially one, where you might have ſeen the dreadful Battel deſcrib'd by the Silver-tongu'd Poet, in Words to this purpoſe.

With Shouts the Bees to Courage each excite,
And Martial Clangors call 'em out to fight.
With hoarſe Alarms the hollow Camp rebounds,
That imitate the Trumpets angry Sounds.
Their Queen's and Country's Honour calls them forth,
Each Amazon *is proud to ſhew her worth.*
On their ſharp Beaks they whet their pointed Stings,
Eager of Flight they tremble with their Wings.
Some lead the Van, and ſome bring up the Rear,
And nimble Horſemen ſcower the Fields of Air;
Advancing ſtrait into the Fields of Light,
Their ſhocking Squadrons meet in mortal Fight:
Headlong they fall from high, and wounding wound,
And heaps of ſlaughter'd Soldiers bite the Ground,
Till hollow Mourner of their Evening Bells
Sounds a Retreat, and Tolls them to their Cells.

In the midſt of this dreadful Battle I was forced to go in amongſt them to do what I could for my poor aſſaulted Bees, but I could afford them little help in this ſo ſudden and violent Invaſion; ſometimes I quite ſtop'd up the Paſſage of my aſſaulted Bees, to prevent the entring in of the Robbers, but then I kept out the true Bees alſo. But ſtrange indeed it was, to ſee theſe deſperate Thieves when they were ſtop'd out, they would ſeize upon the

Crown of the Hive, the Bottom and Sides, any where, and ſometimes every where, and pull and tear the Straw to get in, like ſo many ravenous Vultures; you might hear this pulling and tearing of the Straws of the Hive ſeveral Yards off, as much as to ſay, we will break open this Houſe ſomewhere, and if you hinder us from coming in at the Door, we will break it open, either in the Top, Sides, or Foundation; like a Detachment of Dragoons order'd to go and poſſeſs themſelves of ſuch a Fort or Caſtle, they try at the Gates, but if prevented there, they try all Places, Windows, Walls, nay, at laſt, if nothing elſe will do, they go to work with their ſcaling Ladders, and enter at top, and take it Sword in Hand, and tho' many of theſe brave Fellows muſt fall in this deſperate Attempt, yet on they muſt, be the Enterprize never ſo hazardous, take it they muſt, there is no ſeeing of their General on any other Terms; and thus it is with the Bees, whilſt they were thus deſperately engag'd, for fear they ſhould ſeize on other Hives, I lifted up the Edge of that they were moſt about, and let them go in, and at Night, to prevent farther Miſchief, I burnt them all together, and took what Honey they had left me. Now this kind of Robbing doth not very often happen, for truly if it did, there would be no way for you to help your ſelf; they would do you great Damage if you were never ſo precautious.

Now the Remedy againſt this Miſchief is as followeth: Robbing time is ſometimes ſooner, ſometimes later, according as the Summer is,

and

and is always twice a Year, Spring and Fall; but that in the Spring is not much, in comparison with that, which always, more or less, happens in the Fall of the Leaf, both which are in a great measure prevented by a timely stopping up of the Bees, I do not mean by stopping them up quite, for then you would do them great Damage. *First*, as they are a Creature endow'd with Heart and Lungs, they stand in need of breathing, and so stopping them up, would hazard the Suffocation of the whole Stock of Bees. And *Secondly*, your stopping them up would hinder the true Bees from going in and out to Labour; for tho' there is not much Honey to be had abroad, and that is the Reason that Robbing doth begin, yet there is some to be had, so that you must not stop them quite up, for those that do not turn Robbers, will continue their Labour as long as there is any Honey to be had; and truly none are apt to turn Robbers, till after Honey-gathering is over.

You shall know the Robbers in the beginning of their Work, if you observe them in *August*, and sometimes in the latter part of *July* they begin; you shall see when any Hive is attack'd by Robbers, they first begin with a few, and these having but newly begun their Trade of Robbing, are not very bold at first, but as if they carried Guilt along with them, as well as Fear, they try to pitch here, at this End of the Landing Board, then at that, then at the Middle, gently touching and trying about, and immediately on the Wing again, and the true Bees catching at them, and sometimes lay

hold, and have them to long Examination before they pass Sentence of Death on these Intruders; for dwelling peaceably under their own Vine, and only enjoying the Fruit of their own Labours, they cannot tell how to believe any should be so unjust as to disturb their honest Repose, till by frequent Attempts of this Nature, they are made sensible to their cost, that it is but too true that indeed 'tis time for to look about them, for both Right and Property are invaded; so doubling their Guards, they are upon the Watch, but you, upon Observation as before, may always know these Robbing Bees, by their cautious and timerous way of pitching, they do not as the true Bee, come at once, boldly pitch, and enter in at the Porch, but dodge up and down, as if they would without the Knowledge of the true Bees steal in, and fetch only one Load of Honey, but after they have got a stronger Party (which if they succeed, they always do) they then grow bolder: But to the main Business of stopping them up, it is thus to be manag'd; as soon as ever you find any of these Thieves before describ'd, begin to assault your Stalls, then streighten their Porches, by letting them only have room for two Bees to go in and out at a time, or about three Quarters of an Inch, which small Porch or Entrance, they can, and will better defend against an Enemy, or Robbers, than they could a Passage of four Inches long. Thus you ought to do to all your Bees together, in the beginning of *August*, or before, if you discover the Robbers in *July*, you are then to do it, and it is thus easily done: Take a taper smooth

bit

bit of Board made for that Purpoſe, but half an Inch ſquare at the leaſt end, and an Inch broad, and half an Inch thick at the other, and about three Inches long; ſo putting in this bit of Board a little way at the Mouth of the Hive with the ſmall end formoſt, then have in readineſs ſome Lime and Hair, and preſently ſmooth up all the reſt of the Paſſage, then gently draw out your bit of Board, and you will have a Porch only of half an Inch, or three Quarters, according as you put your bit of Board in, farther or leſſer way, and ſo let them ſtand all the Winter, and in the Spring, till robbing-time is over, which generally is in the beginning of *April*, many times in the Middle of *March*, according as the Flowers do blow; for let them blow early or late, when ever it is that there is plenty of Honey-gathering in the Fields, (you may throw open your Porches again to 4 or 5 Inches,) there will be no robbing of the Stalls; but if you find that notwithſtanding all your ſtopping, they have ſtill an eager mind to rob one particular Hive, and make violent Aſſaults every Day upon it in great Numbers, then 'tis a ſign indeed that they have pretty largely taſted of its Sweetneſs already, and notwithſtanding all your Care, it is ſtill in great Danger: whereupon try it if it be not already too light for your farther Care, and if you find it heavy, and indeed worth ſaving, then there is but one way left to try to preſerve it, and this múſt be done with great Care and Circumſpection, and that is to ſtop the Hole quite up, but it muſt be in the Evening, when the

the Robbers are gone, and the true Bees are all within, and it muſt be with ſuch Materials, as will admit of their Breath to go in and out, 'tho not of their Perſons. This is done three Ways, either by plaſtering in with Mortar a bit of Comb, or elſe by Quills thruſt in hard one by another, till you have fill'd the whole Porch, or Pieces of Tobacco-pipes thruſt in very hard one by another, ſo will the Bees be kept in, and the Robbers kept out, the Honey preſerv'd, and your Bees provided for, inſtead of being deſtroy'd: You will ſee every Day the robbing Bees come. and at firſt finding no Reſiſtance at the Porch, try very eagerly to get in, but after ſeveral Days tryal in vain, they grow weary, and ſo leave it, and in about a Week wholly forget it, at which time you may open it again.

Now in doing this Buſineſs, here are ſeveral things to be very carefully obſerv'd, or elſe you marr all your Work, and ſo do more harm than good; for you muſt be careful when you ſtop up your Hive, that you plaiſter it all round the Bottom, and make all cloſe and ſecure every where elſe, for two Reaſons. *Firſt*, Your Bees being ſtop'd up, will have an eager Deſire to take the Air, and ſo will try every part of the Hive to make way to get out, and will get out if poſſible they can, but where-ever they come out, either Bottom, Top, or behind, they will go to no Place to go in again, but to the old Place where they have been us'd to go in and out at, which now they are prevented to do by its being ſtop'd up, and by their thronging to get in, you take them to be Robbers, and ſo

deſtroy

deſtroy them. *Secondly*, The Robbers finding themſelves diſappointed by being ſtop'd out at the Mouth, will not fail to try your Hive or Box all round, Top and Bottom, to come at the Sweet they have already taſted of.

Then alſo if you make uſe of Quills, they muſt be very ſmall, or elſe ſome of the Bees I have known thruſt themſelves thro' a large Quill and ſo not being able to get in again, are loſt; ſo that if you uſe Quills, they muſt be ſmall, or ſome large Feathers amongſt them, I mean, only the clear of the Quills, or Feathers, with both ends cut off, that they may breath thro' the hollow part of them.

CHAP. IX.

The Manner of taking the Honey.

AND this melancholly, and indeed tragical, as well as laſt Part, is the moſt unwelcome to me to treat of, it being as well contrary to my Nature (to deſtroy thoſe Creatures I have ſo great an Eſteem for) as to my Judgment, as will hereafter be made appear; but leſt there ſhould be ſomething wanting in this Tract of Bees, I ſhall briefly lay down the following Rules: If you deſign to keep only a ſmall Number of Bees, then about the Middle of *Auguſt* weigh all your Hives, that is poize them with your Hands, by which you will be able to judge of their Weight, and ſo take the heavieſt and lighteſt, the heavieſt, becauſe they afford you moſt Honey, and the lighteſt, be-

cauſe

cauſe they will not live over the Year; if you find they don't weigh 14 Pounds, they will hardly live.

But if you deſign to keep many Bees, and increaſe your Stock as faſt as you can every Year, than leave all ſtanding that are ſtrong enough to ſtand, and take only the lighteſt that will not, ſo will you by their ſwarming increaſe into a very large *Apiary*, that will afford you great Profit, as ſhall hereafter be made appear. When you have poized them all, and marked which of them you reſolve to take, then proceed after this Manner. Have in Readineſs ſome ſplit Sticks about 6 Inches long, and ſome Rags dipt in Brimſtone, and put in each of theſe ſplit Sticks, then dig as many Holes in the Ground near your Bees, as you deſign to take Hives; then in the Evening ſtick in each Hole one of your Matches, and lighting one at a time, fetch the Hive and ſet over it, immediately with ſome of the Earth ſtop the Hive all round to keep in the Smoak, and keep in the Bees, they will be all dead in half a quarter of an Hour; ſo giving the Hive two or three Knocks with your Hand to ſhake down the Bees that hang about the Combs. Take it into your Houſe for your uſe.

CHAP.

CHAP. X.

The Profit of Bees, *where many are kept, and how to raiſe to a good Number.*

SUppoſe you begin to raiſe your *Apiary* with Ten good Stocks, which in ſome Parts of this Kingdom may be bought for ten half Crowns, in others for Crowns, but in this Country they are ten Shillings a Hive. The firſt Year you will, according to the foregoing Directions, by doubling your Caſts, be able to have about 25 good Stocks, and the next Year about 60, and the third Year about 150, barring Caſualties, and they prove good Years; ſo that when you have rais'd this Stock, you are rich enough, if you are not over-covetous; ſo that in three Years time you may from Ten Hives, if good Weather comes, have Bees enough to take the fourth Year 160, more or leſs, according as the goodneſs of the Weather is, which ſet them all at Five Shillings a Stock, good and bad together, comes to 40 Pounds Sterling; and I ſuppoſe, whoever doth arriſe to the half of this Profit, will ſuppoſe themſelves very well rewarded for the Care they have taken about them.

Thus having given Directions how to manage your Bees in Straw-hives, which I was willing to do, becauſe moſt of the People of *England* will never attain to the keeping of them in Boxes, for two Reaſons: *Firſt*, Becauſe 'tis a hard thing to put them out of their old Road, which every Old Woman thinks ſhe under-

derſtands. And *Secondly*, Becauſe it is a more chargeable way than the other, and therefore many cannot attain thereunto.

I ſhall now go on with my Deſign in teaching the way how to keep Bees in Boxes or Colonies, which is more pleaſant and profitable than the other, and more merciful; becauſe in this way, which we are now about to treat of, we kill no Bees, yet have great quantities of Honey.

CHAP. XI.

The way of keeping Bees in Colonies or Boxes, with Glaſs Windows, without killing the Bees, as in the Old Method.

IN this way, which was firſt invented by Mr *Geddey*, who obtain'd a Patent for the ſame of King *Charles*, there is a neceſſity of having a Bee-houſe for to keep your Colonies in, not an open Bee-houſe, ſuch as Straw-hives are commonly kept in, but cloſe with Doors, both before and behind; for if your Boxes were expoſed naked to the Beams of the Sun, it would melt the Honey and Wax too, and ſo ruin the Colony. For as Wood is more denſe than Straw, ſo a Box is more capable to retain the heat of the Sun than the Straw-hive is, and conſequently the Sun will melt the Honey and Wax in a Box, which it would not do in a Straw-hive if it ſtood in the ſame place. In this Method their Swarming is prevented, for all Bees Swarm for want of

of room, which want is here ſupply'd, by giving another Box when they want room; neither in this way do we kill any Bees, which being a mercileſs and cruel way, is here prevented, and the Bees preſerved alive till they die a natural death.

One thing I had forgot to inform my Reader of, and that is this; the beſt way is ſo to place his Bees, if it may be done with conveniency, that they may be near Water, I mean within twenty or thirty Yards of ſome running or ſtanding Water, it matters not which, they drink much, and fetch Water often to mix up their Sandarach or Bee-Bread to feed their young, eſpecially in *March*, *April* and *May*; ſo that if they ſhould be very far from Water, they would loſe much time in their many Journeys to fetch it; but this Defect may be eaſily ſupply'd, by cutting them a little Trough out of Elm that will hold about a Gallon, and ſet it or hang it near them; or if you will be more curious, let it be well and exactly made of Deal-boards neatly nailed together, and well Painted three or four times over, that the Weather may not hurt it. I have one of theſe in my own Garden, where I ſometimes ſee an hundred or more drinking together, which is a very pleaſant Sight, as well as a great Convenience to the Bees; but be ſure always remember to cover theſe Troughs with ſmall Boards of Deal for them to ſtand upon and drink, otherwiſe many will be drowned, I mean for the Boards to ſwim in the Water, that they may ſink as the Water ſinks; ſo will the Boards always be wet, and the

Bees

Bees will ſtand upon them and drink by ſucking the Water out of the wet Boards, but will not drink immediately out of the clear Water.

CHAP. XII.

Directions to the Carpenter how to make a Bee-houſe for Six Colonies or Boxes of Bees, which if full of good Bees, will at ſome times employ 18 Boxes.

THE Length of the Houſe muſt be 12 Foot, the Breadth two Foot, and the Floor two Foot broad; and becauſe no Boards are ſo broad, you muſt doult or nail together on the under ſide, 2 Boards that are a Foot broad, and 12 Foot long. On this Floor all your 6 Colonies are to ſtand at an equal diſtance one from another, the 2 end Boxes within 4 or 5 Inches of the ends, and the ſpace betwixt equally divided for the other 5 Boxes; they ſtand 4 or 5 Inches from the end, that you may conveniently put down your Hand to take hold of the Iron handle of the Box, in order to lift it upon another Box, when there is occaſion, as ſhall be taught hereafter.

When the Carpenter hath provided himſelf with the Floor, then let him with Fir Balks, or Deal Boards cut, make a Frame after this manner. The two ends muſt be made, each conſiſting of two Pillars four Foot high, and faſtned together with a piece of Board, about a Foot

a Foot from the Ground, for the ends of the long Board designed for your Floor to rest upon, then with slit bits a-cross fasten the Pillars together in several places; then fasten your two Plates of the House before and behind, which must be whole Deal, 12 Foot long, and 4 Inches broad, with a Rabet in the lower side, for the Door to shut into; then make your Rafters, which must be fastned to your Plates, which must be about 8 or 9 pair, to nail the Boards to, which are to cover the Bee-house; then make 4 Doors for the Front, and 4 Doors for behind, leaving two upright Pieces, where it will not be in the way in the management of your Boxes to fasten your Doors to, with Locks, if you please, these may clasp one over another, so that one Door shall keep another fast. In short, this long Bee-house must have Doors all along, both behind and before, that you may have any part of the Bee-house open as you have occasion. Your Doors must be as high as the Eves of your Bee-house cover will let it, which will be near 3 Foot. Then you must make a Ledge, and this must be done with great Care. This Ledge must be a long piece of Board 12 Foot long, and an Inch and a Quarter thick, and 2 Inches broad. In this Ledge you must have a Rabet of half an Inch, for your front Doors to shut into, to answer the Rabet over head in the Plate of the House. The Floor of the Bee-house, before spoken of, must come to the very outside of your House, and this Ledge must be nailed on all along, to the very outside of the Floor-board; so then when your

Door is shut into the half Inch Rabet, it will be even: But before you nail down this Ledge you must Saw in the under side 6 Passages, and cut them out very smooth, the Passages are for the Bees to work in and out at, into the Boxes, and must be four Inches in length, and half an Inch in height. Against the lower edge of these Holes, you must nail on a Landing Board, a little wider than the Hole, about 5 Inches long, 2 Inches broad, and set a little sloping for the greater Conveniency for the pitching of the Bees; the Floor being of this length, and to bear so great a Weight, must be supported in two or three places underneath, or else such a Weight will make it swag, and put your House and Doors all out of order.

First, Observe that your Bee-house must be all Doors before and behind, because there is no part of the House, but some time or other, you will want to have open.

Secondly, That these Doors must be made, that they may be kept very close, so that the Sun in the Heat of Summer may not, by its shrinking the Boards, let any Bees go in and out at the Chinks, or any other way (much less a Mouse) but thro' those holes cut for the same purpose in the Ledge under the front Doors, for there is no occasion for such an one for the back Doors.

Thirdly, That the main Design of this Ledge is not for the Rabet for the front Doors to shut into (tho' it serves very well for that) but to makes Lines of Communication from the Landing-boards to the Boxes.

Fourthly,

Fourthly, That this Ledge is 2 Inches broad (when indeed an Inch would do to make holes go thro', and for the Rabet for the Doors to shut into) because otherwise there would happen these two great Inconveniences. *First*, The Glass Window in the Front of the Box would then stand but half an Inch from the Front Door of the Bee-house, which in extreme hot Weather would make the Bees so hot they would not be able to endure the Box, but would be in danger of flying all away, or else at best would set their Honey a running, and so expose them to be robb'd by other Bees. But *Secondly*, A Straw-hive would come too near the Door, if the Ledge were but an Inch, for when you put in your Straw-hives (which you must do at first, as shall be hereafter taught) into your Bee-house, you must bring it to touch the hole in the Ledge, and the Belly of it would so hang over the Ledge, that the Door of your Bee-house would not shut, or at least not shut but with thrusting back the Hive of Bees from its place, upon which would follow several Inconveniences, all which is prevented by having the Ledge 2 Inches broad; so there is room enough for the Door to shut, notwithstanding the Belly of your Hive and your Box standing an Inch and half from the Doors of your Bee-house, will stand cool enough in the hottest Weather.

Fifthly, That besides the Standards that are for your Doors to lock into, you had best to have Hasps of Wood to turn on a Nail, six before and six behind, to hasp the Doors, to keep them fast in their places, that the wet

Weather may not, by their ſwelling, put them out of order, and that the hot Weather in Summer may not ſo warp them, as to ſpoil their true ſhutting; but good Painting the Bee-houſe will in a great meaſure prevent both theſe Misfortunes.

Sixthly, Be ſure to take care in the making your Bee-houſe, that you ſo contrive your Doors, as to leave none of the Standards whereinto the Doors are to lock, againſt any part of the Boxes, but only in the Spaces betwixt Box and Box.

Seventhly, Leave 20 Inches betwixt each hole that you cut in your Ledge. The beſt way to know exactly where to cut theſe holes in the Ledge, is to take a Box, and placing it within 4 or 5 Inches of the end, mark the hole againſt it all along your Floor, then mark your firſt hole to be cut in your Ledge over-againſt the hole, or ſliding Shutter of your Box. When this hole is marked, then go and mark them all out, leaving 20 Inches betwixt each hole, and that will bring you right at the other end of the Bee-houſe.

Eighthly, That I have here projected a Bee-houſe for 6 Colonies, rather than for a fewer Number, becauſe it will coſt very little more than for one, two or three. But however, if any have a mind for a leſs, the Workman will be able by this Model to make one for three, which if leſs than ſix is the beſt Number.

Ninthly, That the Doors, as well as other parts of the Houſe, are to be made ſo cloſe, that the Bees ſhall no way get in nor out, except at

the Holes made in the Ledge on purpoſe; becauſe it will not only defend them againſt the Cold in Winter, but preſerve them from Thieves and Mice; and Care muſt be always taken that there be no Way, Chink, or any other Defect in your Box, that may let any of the Bees into the Houſe, for they will be loſt, or make their Way out through the Houſe, if any Chinks be wide enough, which will expoſe them to Robbers; for where a true Man can get out, a Thief may get in.

Tenthly, Let the Boards for the Floor be very ſmooth and even, that the Box which is even may touch in all Parts, elſe the Bees will creep out under ſome Corner of the Box, and be loſt.

Eleventhly, The Boards for the Cover of your Bee-houſe muſt be 12 Foot 4 Inches long, that it may come 2 Inches over each end, and two Boards ſlit Feather-edg'd will cover the Houſe.

Twelfthly, Let your Bee-houſe ſtand as free from the Wind as you can. The beſt way for the Bees is, that the Houſe ſtand to the *South*, inclining a little to the *Eaſt*, and let it be well faſtned by large Poſts of Oak, ſet at leaſt 3 Foot into the Ground at each corner, to prevent being blown down by high Winds, as ſome of mine were in the great Storm.

Thirteenthly, You cannot ſet it againſt a Wall, as in the common Method of Straw-hives, but if you chooſe ſuch a place in your Garden, you muſt ſet it 4 or 5 Foot from the Wall, that you may eaſily open all the back Doors.

CHAP. XIII.

Directions how to make the Boxes or Box-Hives for the Bees, with Iron Handles and Glaſs Windows.

THE Materials to be got ready before your Carpenter doth begin to make the Boxes, are theſe that follow. Thick ſlit Deal, which muſt be of the cleareſt Diamond Dram Deals, 9 or 10 Inches broad, which are an Inch and half thick before they are ſlit; ſo that the ſlit Deal will hold above half an Inch when Planed of both ſides. Your *Chriſtian* Deals not being thick enough for this Work, and yet they are too thick and heavy to be made of them without ſlitting.

One of your Deal Boards muſt be ſlit two kerf, that is, ſlit into three Leaves inſtead of two. Theſe being thinner than the reſt, are to make the Slider on the top of the Box, and the Doors over the Glaſs Windows. Square Panels of Glaſs, 5 Inches broad, and 7 Inches high; Trunk Handles of Iron bought at the Iron-mongers, long bits of thin Iron or Tin, 5 Inches long, and an Inch broad, ſome Two-penny Dove Nails, or ſmall Hinges, with ſome Nails and Three-penny Sprigs.

Then let the Workman proceed to make a Mould, for his more exact making the Boxes upon, that the Boxes may be exactly of a bigneſs, to fit one another, when they come to be uſed about the Bees.

Let

Let your Bench be very ſmooth, exactly even, and well planed; for if your Bench be uneven, ſo will alſo the bottom of your Boxes, and ſo be unfit for the Floor of your Bee-houſe. And whereas the Form of the Box muſt be Eight Square, ſo muſt be alſo your Mould. Upon your Bench mark out, with your Rule and Compaſſes, an exact 8 Square of 18 Inches Diameter, which is the breadth of your Box, then fit ſmall bits of Deal for a Mould within your place marked out half an Inch. Theſe bits need not be above half an Inch broad, and ſo nail them faſt down to your Bench in an 8 Square, 17 Inches Diameter; ſo that the Box which is made on the outſide of this Mould, will be 18 Inches or ſomething better, according as the Board your Box is made with is in thickneſs. And here take Notice, that this Mould is never to be taken up from the Bench till you have made as many Boxes upon it as you deſign to make in all, ſo will they be uſed with leſs Trouble,

as by Experience you will find, when they are all of a bigneſs, and exactly fit one another, then when they are otherwiſe made, either thro' Ignorance or Careleſsneſs. Then take one of the thickeſt of your ſlit Deals, and ſawing it out in 18 Inch Lengths, let them be glewed two and two together, to make the tops of the Boxes, which muſt be 18 Inches over: ſo having glew'd as many of the two breadths together as you deſign to make Boxes, then proceed to plane your Boards well on both ſides, and then ſaw out the Scantlings of the Boxes, which muſt be 7 Inches and a quarter in the wideſt part, 6 Inches and 3 quarters in that part or ſide that is to be the inſide of the Box, the edges being thus ſmoothed off with a Plane, and ſet upright, and ſtaid down to the Bench with Sprigs againſt the Mould before deſcribed, ſo you will find that 8 of theſe pieces of Board will come round your Mould, and make a Box; tho' every Box muſt have but 6 of them, becauſe the Squares before and behind muſt not be of theſe Boards, but fram'd with 2 Rabets, one inſide Rabet to receive the Glaſs in the inſide of the Box, 7 Inches long, and 5 Inches broad; and another Rabet on the outſide above the Glaſs, to receive a thin Door, which muſt be made to ſhut over the Glaſs Window, and hung to the Frame with the ſmall Two-penny Dove-nails before ſpoken of, and muſt be planed very thin, for the whole Frame containing the Glaſs, and this little Door muſt be no thicker than one of the other Boards, and uſed as one of them, before and behind the Box, and with a ſmall

Button

Button to turn upon a Nail it is to be faſtned with, that without trouble you may open the Door when you have a mind to ſee what your Bees are a doing; ſo when you have fixed theſe 2 Frames with Glaſs Windows one againſt another, or one before, and another behind, and fitted your 6 pieces to them, and with Three-penny Sprigs well faſtned them together, then fit your Head, which muſt not be nailed on at top of theſe pieces, but cut exactly with great Care, and let down within theſe pieces, and then let all the pieces and Frames be well Sprig'd to this Head, ſo the Box is made, but not quite finiſh'd. There remains yet Three Things to be done before 'tis finiſh'd, and that is a Hole and Slider over it in the top of the Box, a little Slider under the Front Door, and two Sticks a-croſs the Box, to reſt the Combs upon. *Firſt*, As to the hole in the middle of the top, it muſt be 5 Inches Square, and half an Inch on each ſide of the hole muſt be cut in Grooves for a Slider to run in, that when it is once faſtned in, it ſhall not riſe to come out, but only ſlide too and fro, in order to ſtop, or leave open the hole of 5 Inches Square, as occaſion requires. For when the Box is to be the upper Box, then the Slider muſt be thruſt home to ſhut the hole, but then the middle Box or under Box muſt have the holes open, with the Shutter thruſt quite back, this hole ſerving for Communication between Box and Box. Now the way to make this Slider, is to pare away with a ſharp Chizel a place for the Slider, which muſt be wider than the hole by at leaſt half

an

an Inch, and ſo run in a Groove, being hollow on purpoſe to ſhut the hole, or to be thruſt back. This cutting away a place, muſt be as deep as your Slider is thick in the top of the Box; but then the beſt way is not to have the hinder part of this Shutter or Slider to be of the whole breadth, as it is at the other end, but cut juſt at the hindermoſt end at the breadth of 2 Inches only, after this manner,

which two Inches is as ſufficient to drive home this Shutter with, when you want to cut off the upper Box of Honey, and more convenient than if it were left to the whole breadth open; it muſt be ſo ordered in the making this Slider, that when it is thruſt quite back, this narrow end may be even with the outſide of the Box, and two little bits muſt be nailed on after the Shutter is made, and put into its Grooves on the Box of each ſide of the narrow end of this Shutter, to fill up that which is cut away off this Shutter, and this will hinder the Shutter from ever falling out, or being loſt, and alſo prevent the Bees from coming out at each ſide. The uſe of this hole in the Box, I have told you before, is for the Bees to work down thro' into the under Box, and this Slider is to drive home when you are to cut off the upper Box; ſo that at once it ſerves to cut off one Box from another, and to ſtop the hole of 5 Inches, and keep the Bees in the under Box, but it muſt have a thin bit of Tin, or thin Iron nailed on at the broad cutting end, and the Slider alſo ſhaved away thin to nothing,

and

and then the Plate of Tin nailed on, tho' it be not very ſharp, will very well cut off the Honey and Wax that is in the hole. The next thing is a Slider in the edge of the Box, under the Front Window, that Square of the Box where the narrow end of the broad Slider before ſpoken of, muſt be always the hinder part, and this narrow end muſt always come out over the back Window, ſo under the contrary Window, which is the Front Window, there muſt be a Paſſage cut about half an Inch in heighth, and 4 or 5 Inches in length; but you muſt make a little Slider to ſlide along to ſtop this hole alſo when there is occaſion, or as much of it as you think fit. This little Slider muſt be cut with ſloping edges, and the Box where it is to go hollowed; ſo that when it is thruſt home (as it always is when a Box is raiſed) it may ſtop the hole cloſe, and alſo be entirely of the Box, and not fall out. When the Box is raiſed this Slider muſt be about 7 Inches long, ſo as to come about 2 Inches without the Box, with a Notch cut in the outer part, almoſt at the end, to take hold of to pull it out by, when it is too far in, or to draw it out to its full length, if occaſion be, without at all diſturbing the Bees. Then let your Trunk handles be put on to the two ſides of your Box, that as you ſtand either behind or before your Bee-houſe, you may conveniently lift up your Box. Let theſe handles be very faſt clinch'd in the inſide; the beſt way is not to put the handles near the top nor bottom of your Box, but the middle. Thus is your Box compleat, and may very well

be

be thus uſed without any other Addition, and none have been made with any till ſince the firſt Edition of this Book was printed, not but I have long ſince diſcovered one Inconveniency, which the Bees have ſometimes ſuffered in the Boxes, but always look'd on it as remedileſs, and therefore ſaid nothing of it, but having by late Experience found out one, ſhall candidly diſcover it to my Brethren, who are lovers of Bees.

The Inconveniency that we are now going to remedy, is this; that in the middle or latter Months of the Summer, as *June*, *July* and *Auguſt* (and I think never before nor after) when the Colonies, by reaſon of their continual breeding come to be very full, and the Weather proves very hot; but if it be only hot and clear all is well, but if it be very hot, and ſometimes cloudy or ſhow'ry, the Bees by natural Inſtinct being ſenſible of their Danger by being abroad in the Rain, high then home as faſt as they can (tho' very often they are more afraid than hurt). For I have often known them to preſs home in that violent haſte, only upon the riſing of a Cloud when no Rain hath followed, ſo all preſſing violently at the Mouth of the Box to get in, they ſtop the Paſſage ſo cloſe up, that thoſe within are like to be ſuffocated for want of Air, which makes them ſo uneaſy, that they are like mad things within the Box; nay, ſometimes they have grown ſo hot, that I could ſcarcely hold my Hand on the Glaſs Window; ſometimes in this Extremity I have lifted up the whole Colony on one ſide a little, and thruſt

thruſt under the Edge of the lowermoſt Box a pretty thick Knife-blade, by which means having let them in Air that way, they have in a little time been quiet again; but I have more than once known them upon ſuch a Diſturbance come powdering back again out of the Mouth of there Colony two or three Quarts at a time and lain in a Bunch at the Door threatning to ſwarm; to prevent which, I have gone preſently and raiſed them upon another Box, thinking they had wanted room, when indeed it hath been no ſuch Matter, but only want of Air in the Box occaſion'd as above, but now having found out an infallible Remedy, and without Trouble or Coſt to thoſe that put it in Practice. I ſhall here direct the Joyner that makes the Boxes according, let a Hole be cut 2 Inches ſquare in one of the hinder Cants of every Box, it matters not whether it be of the right or left ſide of your hinder Glaſs Window, and it is no great matter whether it be high or low, but I think it will be moſt convenient about the Middle, over this Hole in the inſide of the Box nail a Piece of Tin Plate punch'd full of Holes as big as you pleaſe, provided the Bees cannot creep out at them, then make a very thin Slider to run in Grooves over this Hole on the outſide, that when it is thruſt home all may be cloſe and warm, and when there is occaſion in violent hot Weather to draw it back, the Air or Breath may freely paſs through theſe Holes, and ſo prevent the Diſorder aforeſaid, as well as prevent their Swarming.

Or thus (which will do as well) with a ſmall Piercer bore Holes in one of the hindermoſt Cants

Cants of the Box, as thick as you can for two Inches ſquare, and ſo let the Slider run over theſe Holes inſtead of the Tin Plate: This laſt I have experienc'd this laſt Summer to anſwer well; this boring of Holes may be done by thoſe who have Boxes already in uſe with Bees in them, for tho' they cannot with Hammer and Nails put on the Slider with its Grooves, yet they may eaſily bore the Holes, and cover them up cloſe in the Winter, with a double woolen Cloth ſtuck on with Pins, or with a Plaiſter of Bees-Wax, ſpread on Linnen, and put on all over theſe Holes when there is no occaſion to have them open, and pull it off when there is, as they ſhall ſee cauſe; theſe Holes or Plates with Holes, with the Slider, you may draw back when your Bees want raiſing on another Box, if you are afraid of their ſudden Swarming; by letting the Holes remain open, that will be prevented, and perhaps you may ſtay a Week the longer before you raiſe your Colony upon another Box, till by the increaſing of their Numbers you are forc'd to it, the Manner how, and the Time when, you will find at large deſcrib'd in its proper place.

The laſt thing is to put two Sticks croſs, or rather two half Inch ſquare Sticks made out of your Deal, one about 2 Inches above the other croſs the Box in the inſide, let the lowermoſt be about 2 Inches from the Bottom of the Box, and ſo faſtned at the four ends, by driving a Nail thro' the outſide of the Box into the ends of the Sticks, which you need not drive quite home; ſo that when you are going to take your Honey out of the Box, you may draw thoſe four

four Nails, and then your Sticks will come out with your Honey with a great deal of eaſe.

Obſervations on the aforeſaid Deſcription of the Box.

Firſt. THAT no one thing here deſcribed can be omitted; the leaſt part is the Slider under the Front Window. And here perhaps you may think, if, if there be but a Hole 4 Inches long under the Front Window, to ſet againſt the Hole in the Ledge of the Houſe, the Bees will work in and out very well into the Box.

'Tis very true, ſo they would without the Slider, but for all that, you cannot be without it; for the Slider ſerves when Robbing-time comes, which is in *Auguſt* or *September*, by thruſting it in farther, to ſtraiten the Paſſage of the Bees; nay, ſometimes you are forc'd to thruſt it in ſo far, that you only leave room enough for one Bee to go in and out at a time, and then when you raiſe your Box upon another, you thruſt it quite home; ſo that it being held in by running in a Groove, it cannot fall out, and ſo it makes that part of the Box cloſe and entire as the other Parts. For now the Bees raiſed upon another Box, muſt all work in and out thro' the hole under the Box.

Secondly, That the Trunk Handles be ſtrong and well faſtned, for if one of them ſhould fail in lifting up a Box, or ſometimes the Weight of two Boxes lies upon one Pair of Handles, (which may be 100 Pounds) it would, perhaps, by their Fall, prove the Deſtruction of your Colony.

Thirdly,

Thirdly, That the Sticks need not go exactly croſs your Box, and it is better they do not but only in the Form of St. *Andrew*'s Croſs X, or the Letter X thus.

Fourthly, That tho' we have Glaſs Windows to open ſometimes, yet you muſt have Doors to ſhut over them; for having the Light always upon them, would very much diſturb them.

Fifthly, That there are yet two Inſtruments more, which tho' they do not immediately belong to the Boxes, yet they cannot be uſed without them; and that is a light Wooden Mallet, and a thin Piece of Wood of the thickneſs of the broad Slider on the Top of your Box, or rather ſomewhat thinner, and about 2 Inches broad, and 9 Inches long, or the ſame breadth of the narrow end of the great Slider on the top of the Box. The uſe of theſe two Inſtruments are for to take off the Box or Hive on the Box withal, by ſetting the end of this thin bit of Board againſt the narrow hinder end of the Slider of the ſecond Box, and with the Mallet drive it home to cut off the Combs in the Hole 5 Inches ſquare on the top of the Box, that ſo the upper Box may be taken away, as ſhall in its proper Place be directed.

CHAP.

CHAP. XIV.

Directions how and when to furnish your Bee-house with Bees

HAving strongly set up your Bee-house as before directed, the best time is in *October*, when all Casualties of their miscarrying by robbing is over, then the best Way is for you to go about amongst the Bee-gardens of the poor People, who will be glad of your ready Money, and let you take your choice, choose such as were Swarms that Summer, and such as are comb'd down to the Stool they stand on, for if they have not, 'tis a sign it was a Cast, or at best but a small Swarm; but be sure you take such as are very heavy, for you had better choose a Staller of two Years old, than a light Swarm; for if they are light, it will take them up so much time to fill up their own Hive, that it will be late in the Spring before they will want the Box to be put under them, whereas if they were very full of Bees, and heavy, they will want their Box in *May*, sometimes in *April* to be put under them. Thus having provided your self with half a Dozen such Stocks of Bees, let them be brought home to you in the Month of *October*, or at fartheſt in the beginning of *November*. The Way of removing them must be warily observ'd; you must lay a thin, and somewhat large Napkin on the Ground, before the Hive of Bees you design to remove, about

eight a Clock at Night, (if it be a cold Day, you may do it by ſix a Clock) for by that time they will be all in, and up in their Hive, ſo that in taking them up there will be the fewer loſt; then take up the Hive of Bees gently, but quick, and ſet them down on the Napkin, and ſuddenly take up the four Corners of it, and tye them croſs-ways over the Crown of the Hive, and then take a Packthread and tye very hard round your Hive on your Napkin, and ſo they are fitted for Carriage; the beſt Way is on a Hand-barrow, three or four at a time betwixt two Men. When you have them home, open your Bee-houſe and put them all in, then firſt untie one of them, and take the Napkin from under it, and putting a Stone, or ſomething an Inch thick at leaſt, lay your Napkin by the Hive thus open'd, and the looſe Bees about the Napkin, by the humming of their Fellows within the Hive, will be call'd home, ſo that few or none will be loſt. About a quarter of an Hour, or rather more, when your Bees in the Hive firſt open'd are pretty quiet, then proceed to perform the like to all the reſt, and ſo leave them till the next Morning. About 6 or 7 a Clock, or about Sun riſing, ſet all your Hives with their Mouths againſt the Holes made on purpoſe in the Ledge under your Bee-houſe Door, and then with Lime and Hair ſmooth up all within the Bee-houſe, ſo that no Bees may get out of the Hive any-where, but thro' the Hole in the Ledge in the Front of your Houſe, and then you have nothing more to do for

for them till next *May* generally, ro however till the latter end of *April*.

Firſt, Obſerve that the beſt time to furniſh your Bee-houſe, I ſuppoſe to be in *October* rather than *May*, becauſe you may then buy Swarms that may fail by Robbing, or ſome other Caſualty, tho' you are left to your own Liberty. If you can have the Opportunity of good large Swarms near you, 'tis pitty to neglect it, but then they muſt be brought home to you the ſame Day they ſwarm; and the Hive put with its Mouth againſt the Hole of the Ledges, as before.

Secondly, Tho' you furniſh your Houſe with Swarms in *May*, you would be no forwarder for the Bees working down into your Boxes the Spring following than if you bought them in *October*, for theſe will be fit to be rais'd upon the Boxes the Spring following, and your Swarms will be no more.

Thirdly, That if you pleaſe to fill your Houſe with Swarms, you have them brought home the firſt Night, for if you ſhould let them ſtand two or three Days, and the Weather good, they may make Combs to hold Honey to drown themſelves in their Carriage, for the Combs being then tender, and the Weather warm, they are apt to break down in Carriage, and ſo the Virgin-honey being fine and thin, they will be clamm'd in it, and ſo ſpoil'd. This I know to my Coſt to be Matter of Fact.

Fourthly, That we take a thin large Napkin, thin, becauſe if it ſhould be of thick Cloth, ſuch as cloſe Diaper when new, or Damask, it would be too thick for the Bees to breath through,

and tho' it might not ſuffocate them, it would make them very angry and troubleſome, in putting them into the Houſe; and large it muſt be, otherwiſe it would not reach to tye over the Hive, eſpecially if the Hives be of any Bigneſs.

Fifthly, That you untie not your Napkin off of your Hives of Bees altogether, for if you did ſo, ſome that were looſe not going to their own Hive, but into another inſtead thereof, being call'd by the humming of thoſe in the Hive, will be all ſlain, which by the Method preſcrib'd will be prevented.

CHAP. XV.

Directions when, and how to raiſe your Hives of Bees on the firſt Box.

IF the Spring be forward, the breeding of the Bees will be alſo forward; therefore you muſt have a little Eye to them in the latter end of *April*, and in the Month of *May*. You muſt not raiſe them upon your Box till they are very thick about the Mouth, or rather begin to lay out with a Tendency to Swarming, then they are fit to be raiſed, and you muſt proceed thus, having your Box ready, with the top Slider quite open, that the Bees may paſs from the Hive down into the Box, and the Slider in the Mouth of the Box drawn back, that the Bees may have room enough to work in and out of the Box, then open both the front Door, and the back Door of the Bee-houſe,

houſe, in that part of it where the Bees are to be raiſed, then let ſomebody ſtand ready with the Box, holding it with the two Iron Handles at the front of the Houſe, and the fore Slider or Mouth of the Box to themward, go you behind the Houſe, and gently lift up the Hive ſo high, that the Box may go under it, then let him or her with the Box in hand ſet it in its Place, with its Mouth againſt the Hole of the Ledge ſo often ſpoken of; the Box muſt be ſet up cloſe againſt it, then quickly ſet down the Hive upon the Box, on the Middle of it as near as you can gueſs, tho' there needs no Exactneſs; then preſently with Lime and Hair, ſtop up the Mouth of the Hive, ſo the Bees will immediately work down thro' the Hole in the top of the Box, in and out at the ſame Hole they were uſed to before, without any Lett or Hinderance.

Firſt, Obſerve that we do not raiſe the Hive on the Box till they want room in the Hive, which you know by their lying out in a Bunch, for if you ſhould raiſe them too ſoon, before they want it, you will greatly hinder them, by carrying all their Work thro' a great empty Box which they do not want, becauſe they have not fill'd their own Hive.

Secondly, That we preſently ſtop up the Mouth of the Hive as now uſeleſs, the Mouth of the Box ſerving for the ſame purpoſe.

Thirdly, If you ſhould not preſently ſtop up the Mouth of the Hive, the Bees would ſtill hang about that, and not go down into the Box, but the Mouth of the Hive being ſtopt up, they

having now no other Paſſage, they preſently take to it.

CHAP. XVI.

Directions how to raiſe the firſt Box and Hive upon a ſecond Box.

YOU may now be upon greater certainty about raiſing the Box, than you were about the Hive; becau'e of the Glaſs Windows in the Box. When the Bees have work'd down in your Box, ſo as that the Combs come to each Window of your Box, and your Box ſeems very full of Bees, as well as Combs, then is the time to raiſe it on another Box, eſpecially if you ſee them ſeal up their Honey in the Combs half way down the firſt Box, which you may eaſily ſee at the Windows as before; then placing ſomebody before that part of the Bee-houſe, with a Box ready in hand, and the broad top Slider thruſt quite back, that the hole may be open, and the Slider in the Mouth or under part of the front of the Box drawn ſo far back, as to leave a ſufficient Paſſage into the Box, then as you before lifted up only the Hive on the firſt Box, now you muſt take hold of the Iron Handles of your Box, and lifting up Box and Hive together, ſet under the ſecond Box, which ſometimes in a good Summer, you may do by the Middle of *June*, immediately thruſting quite home the Shutter of the Mouth of the firſt Box, that no Bees may come out at that

Place,

Place, but now work in and out thro' the ſecond Box.

Firſt, Obſerve, that there muſt always be great Care taken when you put under a Box, (whether it be the firſt or ſecond) that the Slider in the top of the Box be always thruſt back, for elſe your Bees cannot go down into the under Box, according to the Deſign of theſe Boxes for theſe induſtrious Servants of ours, tho' they may be help'd in their working, by thus ſupplying them with more room, yet they muſt not be contradicted in the nature of their working, which is always to work downward and not upward.

Secondly, Be ſure a little after you have rais'd them on a new Box, to open your Houſe again, and ſee that your Box is ſet cloſe to the Ledge of the Houſe, that the Bees may not creep from between your Box and the Ledge into the Houſe.

Thirdly, Always take notice, that if your Boxes, when ſet one upon another as before directed, do not fit one another exactly, but there be room enough for the Bees to come out into the Houſe betwixt the joyning of the two Boxes, that you with a ſmooth Knife fill up thoſe Chinks with Lime and Hair; alſo if your Board ſhould not be made ſmooth, I mean the Floor of your Bee-houſe, ſo that the under Box doth not ſtand cloſe enough to it to keep the Bees in the Box, but that ſome of them creep out from under the Edges of the Box, then ſupply alſo that Defect with Lime and Hair, ſo that you now having a

compleat Colony of two Boxes and a Hive, you have nothing to do till you take off the Hive.

CHAP. XVII.

Directions how and when to take off the Straw-hive, and return the Bees found therein to their Fellows, that none may be loſt.

WHEN by your Glaſs Windows you perceive your Middle Box is well furniſh'd with Honey, (I mean the Box that your Straw-hive immediately ſtands upon,) then to take off the Hive proceed thus. Firſt of all take a Napkin, and with ſome Nails, or Pins will do as well, for I have often done it with the latter, pin your Napkin with one end on the Landing-board, where the Bees pitch before they go in, let your Napkin be up cloſe to the hole, but ſo that the hole be ſtill open, that the Bees be not diſturb'd, nor their Work hinder'd. In this Operation you have no occaſion to open the front Door of your Bee-houſe but only the back Door, then take your thin piece of Board and Mallet before ſpoken of, and go behind them, then ſetting your thin bit of Board againſt the narrow end of the top Slider of your upper Box, with your Mallet drive it home, to cut off the Combs that are in the Hole of the upper Box, and this muſt be thus perforned. Hold the thin Board in your left Hand, and with your Mallet in your right, give it two or three Knocks till it is home, all the while preſſing your Board with

with your left Hand hard againſt the end of the Slider, and carry your Hand even, that when you drive it in with the Mallet, that it may not ſlip over nor under, but keep directly againſt it till it is quite home; then take hold of the Hive, which now being cut off from the Box, will with little Force come up from the Box, and as you take it up, twiſt it a little rounding, ſo it will eaſier part from the Box, then carry it away from your Bees to another part of your Garden, twenty or thirty Yards, if your Garden will admit of it, that you may be eaſy and quiet in performing the reſt; then place your Hive upſide down, or with the ſmall end downward, in a Pail, Peck, or Flower-Pot; ſo the ſmall end going into any of theſe Veſſels, it will ſtand very firm; then take an empty Hive and place it on the top of your Hive of Honey, Mouth to Mouth, then take a large Cloth, (I commonly do it with a Table-cloth) tye them round at the joining, that no Bees may get out, and then with a Stick ſtrike pretty hard, ſo as to ſhake the Bees that are within, ſtrike ſometimes on one ſide, then on the oher, and ſo all round, let them ſtand a little now and then without ſtriking, that the Bees that are crawling up may have time to go into the empty Hive; then ſtrike again, all the while hold your Hand on the empty Hive to keep it in its place, which elſe would be like to fall off with the ſhaking of the other. When you have ſo done, more than a quarter of an Hour, let them ſtand ſtill a little, and then taking the top Hive in your Hand, which now hath all the Bees that were in your other Hive, carry them away to

the

the Napkin, and laying a Stick on that part of the Napkin which lyeth on the Ground, with one ſmart Stroke of the Hive on the Stick that is on the Napkin, you will ſhake out all the Bees together, where they will lie a little while and then crawling up the Napkin, go home to their Fellows, who will gladly receive them, as may eaſily be perceiv'd by their Shouts of Joy, which thoſe who are us'd to them very well know; ſo here you have the Honey and no Bees deſtroy'd, but they undiſturb'd keep on their Labours, not knowing what a ſlippery Trick you have play'd them; ſo you may carry your Honey in, and ſtrain it to put up in Pots, which I need not direct; or make it into Mead, as ſhall be hereafter directed.

Firſt, Obſerve that you muſt have a Mallet always in readineſs, to drive home the top Slider, but if by thruſting with your Hand, the Cutter of the Slider makes its own way, thruſt it home without uſing the Mallet at all, being the ſtilleſt way. This I have done, but it will not ſometimes do without the Mallet, eſpecially when the Combs in the hole of Communication are above a Year old.

Secondly, You go twenty or thirty Yards off from the Bees, that the Smell of the freſh Honey in the Hive you have taken off, may not draw the other Bees about you.

Thirdly, That you never venture to take off the Hive, nor upper Box, till you have good reaſon to judge that the Middle Box hath enough Honey to maintain them all the Winter, leſt you venture the loſing the whole Colony, for want of what you have taken away.

Fourthly,

Fourthly, That ſometimes you will by this means ſee the Queen-bee on your Napkin, which will greatly pleaſe you, when you ſee with what Majeſty ſhe marches up the Napkin with her Subjects, and to the Subjects ſhe left behind.

Fifthly, That we do not at all diſturb or hinder the Bees by theſe takings off of the Boxes or Hives, they ſtill keeping on their Labours, ſince the way in and out is ſtill the ſame, thro' the Ledge as before.

Sixthly, That you do not (when you are ſtriking the Hive, to make them aſcend into the upper Hive) ſtrike that, I mean the upper Hive, for then you will be more likely to ſhake them down which are already aſcended, than cauſe others to aſcend to them.

CHAP. XVIII.

Directions how and when to take off the upper Box the next Year after the Straw-hive is gone.

I Need be but very ſhort here, only obſerve the Directions before about taking off the Straw-hive. But when you have taken off your Box, you then muſt ſet it upſide down on the Ledges of a Joynt-ſtool, turn'd upſide down, and inſtead of a Straw-hive to ſet upon a Straw-hive, now you muſt ſet an empty Box on the full Box, and ſo knock as before directed on the Box, eſpecially hard on the Edge round the Top, which is indeed now undermoſt next the Joynt-ſtool, ſo will the Bees all aſcend into

into the empty Box, and muſt be knock'd out on the Napkin as before.

Firſt, Obſerve that when we take off a Straw-hive from the Box, it is never to be us'd more in this way of keeping of Bees in theſe ſort of Houſes, but when you take off a Box, as ſoon as it is empty, let it be carefully laid by, that the Sliders and Glaſſes be not hurt.

Secondly, That you muſt always look into your Houſe a little after you have took off your Box, and ſee if all be well; for if you have done your Work well, the Slider will quite ſhut the top hole that was open before the Slider was thruſt home. But however, if you find it otherwiſe, that either it be not quite home, and conſequently ſome of the Combs of the hole are torn off, then take a ſharp Knife and cut off what bits of Combs ſtand up, and put the Shutter quite home; but if after all your Endeavours, you ſtill find the Bees creep out at ſome place or other of the Slider, then with Lime and Hair ſtop the Hole, and ſo keep them in their Place.

Thirdly, When you ſtrike the Box on the Stick that lies on the Napkin, in order to return the Bees home to their Fellows, you do not turn thoſe Squares over the Stick where the Glaſs Windows are, leſt the Stroke ſhould endanger the breaking of the Glaſſes.

CHAP.

CHAP. XIX.

Directions how to let a Swarm out of your Box, as well as a Straw-hive.

IF you keep no Bees in Straw-hives to get Swarms from, and have a mind to have a Swarm early in the Spring, then however be ſure to take off the under Box, which ſeldom hath any Honey in *September*, and ſet down your upper Box to the Floor, which is done by driving home the Cutter of the under Box, and then lifting up your Colony by the Handles, ſtanding behind the Bee-houſe, let a Servant ſtand before, and whilſt you lift it up from the under Box 2 or 3 Inches, take it quite away, and ſo ſet down your Box of Bees, and draw back the Door Slider under the Front Window, that they may have room to go in and out again thro' that Paſſage; and whereas ſome Bees will be about thoſe Combs in the Box taken away, let them be knock'd out, or diſturb'd with a Wing, or ſmall Bough of green Leaves, and they will all fly home to their Fellows; ſo that your Colony being thus reduc'd to one Box, when the Spring comes they will not fail to give you a large and early Swarm, if you don't raiſe them upon another Box, which Swarm you may hive as well in a Box as a Straw-hive, and ſo ſet them down in your Bee-houſe, with the Mouth-ſlider drawn back, and the Top-ſlider cloſe ſhut up; the Mouth of the Box being cloſe to the hole in the Ledge as before

fore, ſo will you have an early Swarm out of your Box, as well as (nay ſooner than you could have had) in a Straw-hive; ſo that the way to cauſe them to ſwarm, is, to ſtreighten them of room, and the way to hinder them from ſwarming, is to give them more room, both which may be done in Boxes; but perhaps ſome of the Country People will ſay, What is this to us who have no Boxes? Yes, very much one part of this Document; for tho' we cannot teach you how to make them ſwarm ſo early in the Straw-hive as in Boxes, nor is it any matter whether you can make them ſwarm or no, for if they are full of Bees, and want room, they will ſwarm of themſelves, and if they are not very full, and you did cauſe them to ſwarm, it would be ſo far from doing you a Kindneſs, that it would be a great Damage both to the Swarm and Staller, for the Swarm would be thin, and would alſo leave a thin Houſe from whence he came, which perhaps would occaſion the Loſs of both in the time of Robbing: But what is moſt material for you to know, is how to prevent their ſwarming when the Year is too far ſpent, and this is done two ways; if you find your Bees are like to ſwarm after the Tenth of *July*, they are by all means to be prevented, either by cutting off a couple of Rounds from an old Hive, ſo lift up your Hive, and put the two Rounds under, then plaiſter all round, but the Entrance with Mortar, or elſe you may do it with two or three Brickbats, plaiſtering all between but the Porch. And ſo the whole Family are preſerv'd, which being

being divided ſo late in the Year, would have been very hazardous.

CHAP. XX.

How to raiſe dead Bees to Life.

THIS ſeems to ſound very ſtrange at firſt, but if we conſider the common Experiment among us, of giving a new Life to drowned Waſps and Flies, (by only drying them with a few warm Aſhes) it will not appear altogether ſo improbable. And it is certain, that dead Bees may be rais'd after the ſame Manner to Life, if drowned, from the ſame Reaſons, tho' I never try'd it; but I have many hundred times rais'd dead Bees to Life, tho' not ſuch as have been drowned.

There are two fatal Diſeaſes that Bees die of, beſides that of old Age, *viz.* Hunger and Cold, and thoſe that die of either of theſe Diſeaſes, (provided they have not been dead long, nor their internal Organs ſuffer'd any Diſorder by Putrefaction,) a gentle Warmth will recover them, I ſay a gentle Warmth, for I have try'd many Degrees of Heat, to prove which would be the moſt ſucceſsful, and of all moderate Ways of warming them, I think that of the Hand is the beſt, and will ſend them more luſtily home, than any other way. Take care you bruiſe them not, leſt they ſting you. The reaſon of Bees dying by Cold, is this. In the Spring, or more early Months, or in the Fall, or the latter Months, when the

Ground

Ground is cold and wet, if the Sun happen ſuddenly to ſhine out, as ſometimes it doth, even as early as *January*, and warms the Bees, they preſently beſtir themſelves to look out for Honey, and ſo range about from place to place, (till they are weary) tho' to little purpoſe, at laſt return home, and before they go into their Hive, they pitch on the Ground near it, to reſt themſelves, where the Ground being cold and wet, doth ſoon chill them, (that they cannot riſe) and afterwards kill them; but if in any reaſonable time afterwards, you take them up into your warm Hand, you may eaſily hold twenty or thirty of them at a time, and in leſs than a quarter of an Hour they will come to Life; and when you feel them very vigorous, and ready to force out of your Hand whether you will or no, then open your Hand and they will all fly every one to his reſpective home. By this meaus I have ſav'd the Lives, or rather raiſed from the dead, many Thouſands of Bees: but there are other Ways which I have made uſe of with great Succeſs. When I have ſeen the Numbers have been too great for my Hand to recover, which may indeed be beſt for thoſe that are afraid of the afore-deſcrib'd Method, that is, I have ſpread a Pocket Handkerchief on the Graſs, and ſo pick'd up all my Bees that have been ſo chill'd and kill'd, it may be five or ſix hundred at a time, and carry'd them in, and laid them at a convenient Diſtance from the Fire, that the Heat might be very moderate, and ſo now and then turning them, that they might all by turns have a ſhare of the Warmth, always remembring to tye up the

Corners of my Handkerchief loosely; but however, so that they may not crawl out before they are able to fly, so would they we lost in and about the Fire; so when I have found by their humming, and their lively attempting to get out, that they were able to fly, I have carried them out into my Garden, and opening my Handkerchief, they have all flown home, every one to his own Hive, as readily as if they never had been dead.

At other times I have taken four or five *Dutch* thin Boxes, and with a Nail or Bodkin, making Holes in the Covers, to give them Air, have gone and fill'd these Boxes with dead Bees, and put them in my Breeches Pockets, that of the Coat or Waistcoat is not warm enough, and so let them remain half an Hour or more, and then opening the Boxes in the Garden, they have all gone home as before.

But there is another cause of Death, and that is Famine; and these also may be rais'd to Life as well as the other, but will not be so soon invigorated by Warmth, as those before spoken of, which died of Cold.

I was on the Eleventh Day of *April*, 1702. walking in my *Apiary*, observing my Bees, I saw that one of my Hives of Bees did not work at all, nor a Bee wag, which I was much concern'd at, because I thought it a very brisk one, so turning it up to see what was the Matter, I found to my great trouble, the Bees were all dead, and I at that time ignorant of what I am now treating of, so walking about and musing on my Misfortune, brought upon me by my own Carelessness in neglecting to feed them,

which would have prevented it, and at the same time called to mind that they could not have been long dead, for I had seen them play in and out at the same Hive but three Days before; at last came to a Resolution to try an Experiment, which if it should succeed, would very much please me, if not, it would do me no Damage. The Sun at that time shining out very hot upon the Gravel-Walks, not a little encouraging me in the Enterprize; I call'd for a Dozen of Plates to be brought me, I went and fill'd them all with my dead Bees, which were most of them fall'n down on the Bench whereon they stood, tho' some were betwixt the Combs, which I also knock'd out, and put to their Fellows, and so I left my Plates of Bees where the Sun did shine hottest, so that they were heated above and below, by the hot Gravel underneath the Plates, and the Sun shining upon them, where for a time I left them, with much Curiosity and Expectation waiting for the Event. When they had lain in this Posture about half an Hour, to my then great Amazement, I saw many of them in every Plate begin to wag their Legs, which gave me hopes of Success; so waiting about half an Hour longer, they all began to wag their Wings, and to move their Bodies a little, and in some time after to begin to crawl about a little; so then I took some Honey, and with a long Knife spread all the Combs of the Hive, and then tumbled them all into their Hive, where some stuck by their Backs, some by their Wings in the Honey, could they have been kept a quarter of an Hour longer in the Sun, they would have been more lively,

lively, but this could not be, for I kept them there as long as they would ſtay on my Plates, a little while longer ſtaying, they would have all gone off the Plates, and been loſt, crawling about the Garden; but having put them all home into their old Houſe, I turn'd them up, and ſet them in their old Place again, putting alſo a Plate of Honey under them, to try if it were poſſible to recover them, for knowing that they dy'd of Famine, thought if they were but recover'd enough to eat their Honey, they might poſſibly live, and yet become ſerviceable, and I was not miſtaken, for they did eat their Honey, and tho' none of them came out of the Mouth of the Hive for ſeveral Days, not being able to fly, yet I found every Day when I examin'd them, by knocking gently on their Stool, that by their buzzing, which they always make upon hearing the leaſt Noiſe, that they were ſtronger and ſtronger, and in about ſeven or eight Days they came out and ſet to Work, in order to reward me for my Care of them.

Thus I have given you an Account of Matter of Fact; if any of more Ingenuity or Leiſure, will graft upon this Stock, or improve this Experiment to the Advantage of the Bee-garden, I have my deſire,

CHAP. XXI.

How to make Engliſh *Canary, no way inferior to the beſt of* Spaniſh *Wines.*

ONE Hundred and twenty Pounds will make a Barrel of very good Mead; but if you make it of clear Honey, then your beſt way is to allow four Pounds to every Gallon of Water. Let your Quantity be much or little, which you ought to govern your ſelf by, either conſidering the Bigneſs of your Cask, or the Quantity of Honey you have to make up into Mead, mix it in your Copper, and then boil it and ſcum it well, which Scum you may ſtrain thro' *Hypocrates*'s Sleeve, or a taper Bag, made of Swan-skin, with a Hoop at the broad end, letting the narrow end come to a point. This Bag will make it as fine as the other, through which you may put it. When your Mead is almoſt cold, Tun it up, Clay it down, and let it ſtand till it is fine, and old enough to drink, which ſometimes will be ſooner than other, according to the time of the Year, and Weather that comes upon it after making. This Liquor is one of the choiceſt of Wines, as well as the moſt wholeſome of all the Vinous Liquors in the World, and ought to be drank and made uſe of in Poſſets, *&c.* as Canary; and thus us'd it is impoſſible to know whether the Poſſet was made of your own Mead or Canary.

Thus for making of Mead with clear Honey, but if you do it with the Waſhings of Combs, or

or diſſolve all your Honey from the Combs, then you muſt diſſolve it in warm Water, till an Egg will ſwim in the Mead the breadth of a Shilling. But here you muſt be very careful, that before you break your Combs into the Sieve or Strainer, you ſeperate all the young Bees, which you may eaſily know from the Honey, and alſo the Sandrach or Bee-bread, which is a yellow Subſtance, with which ſome of the Cells are fill'd, which otherwiſe will give your Mead an ill Taſte, and then proceed to boil, ſcum, and tun as before. It is beſt if it be kept till it is a Year old, and if you make it well, as before, it will keep as long as you pleaſe. I have ſome now by me of almoſt Nine Years Old.

THE CONCLUSION.

OH Wonderful! Hath the all-wiſe Creator plac'd ſuch Wiſdom, ſuch curious Art, ſuch Fortitude and Foreſight, ſo polite a Government, and ſuch indefatigable Induſtry in Creatures ſo ſmall as the Bees: Then let us admire and adore, and put our ſelves under the Protection of that Divine Being, from whence all Wiſdom and Goodneſs flows. Are theſe Inſects ſo induſtrious for their own Preſervation by timely gathering of Honey for their future Support and Happineſs? And ſhall we neglect the (*unum Neceſſarium*) or chiefeſt Good, the future Happineſs of our Immortal Souls; our Heavenly Father hath not conceal'd from us where this Honey is to be had. In his Wonderful Works of Creation and Providence, he hath taught us very much, and in his Word much more. Let us then imitate the induſtrious Bee who goes from Flower to Flower for Honey, and labours not in vain; ſo every Leaf of our Bible is full of Honey, full of Grace, full of Love, if we would but take Pains, by Reading, Prayer, and Meditation, to gather the Sweetneſs that is in them; we ſhould then find

our

our Labour not to be in vain. Can these poor Bees be rais'd to Life when dead, by the Skill, Care and Diligence of Man? And why not dead Sinners, who are dead in Trespasses and Sins, be rais'd to a Life of Grace here, and to a Life of Glory hereafter in Heaven, by the Power, Goodness and Mercy of our Heavenly Father, who is both able and willing to perform this great Work upon us, and in us, if we sincerely and in earnest go to him, who is rich in Grace to all that call upon him: He hath made it appear, that he is willing we should come to him, that he may raise us from the Death of Sin to the Life of Righteousness: And he has declar'd in his Word, to be able to save to the uttermost, who hath shew'd us his Goodness and Mercy, in sending his only begotten Son to be our Saviour and Redeemer, who is Life itself, and was sent to raise us from Death to Life, and from the Power of Satan unto God: But we are wanting to our selves, we keep at a distance from him, as the *Jews* of old, of whom Christ when upon the Earth complain'd; *You will not come unto me that ye might have Life.* Now this neglect of ours must arise from one of these two Things, either we do not think our Case so bad as it is, that we do so much stand in need of this Life which is offer'd us in Christ; or else we do not believe him to be both able and willing to save us. As to the first, we have all broken the Holy Law of God, and stand condemn'd by the Law for it, *The Soul that sins must die.* And as to the second, Christ is not only able but willing to save us, *Come unto me all ye that are weary*

and

and heavy laden and I will give you reſt; all thoſe that come unto me I will in no wiſe caſt out, &c.

Then let's away without delay,
Unto his Throne of Grace,
And try if we, by Faith can ſee
His ever glorious Face.
His gracious Call is to us all,
Let's heavy laden come,
Oh, ever bleſt, he'll give us reſt,
We need not fear his Doom.
His Sacred Word is on Record,
He'll turn his gracious Face,
There was no Blame to them that came,
To beg his help and Grace.
'Twas for our good he ſhed his Blood,
Oh, matchleſs was his Love,
And why ſhould we ungrateful be,
And not his Grace improve?
Now gracious Lord thy Help afford,
Grant we thy Servants may,
By thy ſweet Dove now (from above)
And always taught to pray.
Thy Kingdom come thy Will be done
On Earth, as Heaven 'tis,
And grant that we thy Face may ſee,
In Everlaſting Bliſs. Amen.

FINIS.